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An Address

ON THE

INEXORABILITY OF THE LAW OF EVOLUTION

AS MANIFESTED IN MODERN MEDICINE.

Being the Annual Oration of the Medical Society of London given on May 12th, 1930,

BY SIR ARTHUR KEITH, M.D. ABERD., D.SC., LL.D., F.R.S.,

CONSERVATOR OF THE HUNTERIAN MUSEUM OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEDICAL LONDON FIFTY YEARS AGO.

FIFTY years ago a walk round Harley-street, Queen Anne-street, and Wimpole-street provided a medical visitor from the country with quite an interesting morning. The names on the door-plates were already familiar to him; for the greater part they were those of physicians and surgeons on the staffs of our leading hospitals. The physicians were mostly general consultants, but fame, he knew, had given some of them a reputation for being particularly skilled in certain diseases. The surgeons, too, exercised their art on all parts of the body, but already specialisation had taken hold and some were devoting themselves to particular disorders, such as those of the urino-genital system or even confining themselves to definite organs or systems of the body, such as eye, ear, nose and throat, teeth, skin, and such as required orthopædic treatment. Our visitor would also have come across the names of men who had made their reputation in the practice of midwifery and diseases of women—a specialty which in 1880 was at least a century old.

SPENCER'S LAW OF PROGRESS.

Our country friend, if he were familiar with Herbert Spencer's law of progress[1]—namely, that it was merely another name for increased specialisation—would have found an opportunity, in the three streets just named, of studying the application of Spencer's law to medicine. Of the 120 men who at that time had segregated themselves from the army of practitioners and taken up an abode in the three streets, some, although on the staffs of hospitals, did engage in family practice; others were not on any hospital staff but sought prestige in practice from their place of residence. The vast majority, however, were consulting physicians, surgeons, or obstetricians, or were specialists in one branch of these three main divisions. Their numbers represented the extent to which medical specialisation had spread in the year 1880.

The Rate at which Specialisation is Growing.

Were our visitor to return now, after an absence of 50 years, he would be astounded at the rate at which the wheel of evolution has moved in our medical world. Familiar names have disappeared from the doors of our three streets and been replaced by others—quite as noteworthy. The brass plates have decreased in size but greatly increased in number; a census shows that the 120 of 1880 have been replaced by 954 in 1930. While the medical population of London (and the same is true of the provinces) has only a little more than doubled its numbers in the last 50 years, the army of specialists, in the three streets already specified, has undergone an almost eightfold increase. Progress signifies that the number of young medical men who turn aside from general practice for a specialty becomes ever greater. Everyone whose name is affixed to a Harley-street door is not necessarily a specialist, but after making all allowance on this score, there are certainly seven specialists now where there was only one 50 years ago.

How specialisation has sped may also be seen from the fact that the Royal Society of Medicine finds it necessary to divide its proceedings into 24 sections. In our three streets we should certainly have to carry the subdivision farther and recognise about 35 branches of special practice in place of a bare ten of 50 years ago.

Ancillary Sciences Determine the Rate and Mode of Medical Progress.

When we look beneath the surface of things and try to ascertain why the face of medicine has become so changed (and we may be certain it will continue to change) we see that the cause lies, not so much in what medical men themselves are doing, as in what is being accomplished in certain branches of science—particularly in chemistry, physics, physiology, pathology, and biology. The application of modern chemistry to medicine has called into being at least two groups of specialists—perhaps three. Advances in physics have opened three or four new fields of medical practice—for the application of X rays, radium, light, and electricity. Biology—in which we may reckon bacteriology, immunology, and vaccine therapy—has made and is making such progress that a greater number of specially trained men becomes necessary as medical advisers. The technical methods of the physiologist, pharmacologist, and pathologist are being brought more and more into clinical practice, giving those skilled in their use opportunities for fresh departures in special practice.

While the impetus to specialisation come from advances made in the ancillary sciences our progress is also determined by the trend which events are taking in general medicine and surgery. As region after region of the body has become "safe for surgery" specialisation has been found to be necessary both for the patient's sake as well as for the further increase of knowledge. The same is true of medicine; knowledge regarding the ailments of each system of the body becomes so extensive and the technique needed for their full elucidation has grown so elaborate that it is no longer possible for one man to be master of all. As long as knowledge continues to increase and the methods employed to become more elaborate, division of labour—specialisation—must also increase.

The Direction of Progress.

Thus we see that "progress," which is another name for "evolution," has transformed the face of medicine as practised in the west end of London in the space of time easily covered by living memory. What will be its state in another fifty years? Let us see how far Herbert Spencer in 1880 could have foretold the state which medicine has actually reached in the three streets at the present time. He would have premised that the same spirit—a spirit of humanitarianism—would continue to urge medical men onwards in their attempt to relieve mankind of its load of suffering. He would have been certain, if this were so, that knowledge must increase and with each increase must come an augmentation of specialism. But he could not have foretold the direction in which specialism would spread. Our progress has been determined not by deliberate choice but by the force of circumstances, over which, for the greater part, medical men have had no control. That is what I mean by the "inexorability of the law of evolution as manifested in modern medicine." There is behind the medical army an irresistible pressure which thrusts it forward into the future and it must march, not as it would, but as it needs must.

Evolution as Seen in Medical Schools.

I have carried you to Harley-street to give me an opening for my thesis, but now, for the better understanding of the forces involved in medical progress,

[1] Progress, its Law and Cause. Westminster Review, 1857. Reprinted in Essays, Scientific, Political and Speculative, 1868, i., 1.

let us pay a visit to one of our larger teaching hospitals. Let us suppose that after having been in practice abroad for fifty years we are paying a first visit to our old hospital. What do we find? When we left the medical school of the hospital it was manned entirely—or almost entirely—by members of the hospital staff—surgeons and physicians. There were only two exceptions—a chemist and a biologist. Now we find the departments of the school greatly increased in number and every one of them presided over by a man who, although trained for the practice of medicine has elected to devote himself to teaching and research in one of its basal subjects. Physiology, taught by a surgeon when we left, has now widened its scope to such an extent that it has been found necessary to have it subdivided into three branches, each in charge of an expert. What strikes us most in our modern school is the birth of laboratories. Medicine has passed into a new period—the laboratory period. When we left there was only one—the dissecting room—but now we find the old school trebled in size to accommodate great rooms for the practical study of pathology, bacteriology, pharmacology, physiology, and chemistry. In place of a plain post-mortem room, in which physicians on the staff taught us how examinations on cadavers should be made, there is now a great institute of morbid anatomy over which a Director presides and has at his command a highly trained staff—all duly qualified medical men.

Evolution is at Work in our Hospitals.

In the hospital itself we find ample evidence of how potent a factor the laboratory has become in our modern advance. In place of little closets annexed to certain wards, each provided with a spirit lamp, a few test-tubes, and bottles of reagents, we now find suites of laboratories—bacteriological, chemical, pathological, cardiological—each of them requiring a highly skilled medical staff. We find the unit system and the team system at work—physicians, surgeons, and obstetricians, devoting their whole time to the treatment of hospital patients, to teaching, and to research. Amongst the members of the hospital staff, who have still to earn an income from consulting practice, the tendency to specialise has become more marked. The special departments of the hospital have grown in number, and everywhere we see evidence of increased technical outfit—demanding increased knowledge and skill. Under the working of Spencer's law of progress our medical schools and hospitals have undergone in these last fifty years a transformation which amounts to a revolution. The main agent in bringing about the evolutionary changes has been the introduction and spread of the "laboratory idea."

Humanitarianism as an Evolutionary Force.

Let us look for a moment at the underground forces which have speeded our hospitals and schools so quickly in the direction of division of labour and of specialisation. Harley-street in the olden days had to carry a heavy burden; it had to gather enough from the rich to provide itself with the means of treating the poor in hospitals and in teaching students the art of medicine. The rapid increase of knowledge, particularly in the basal subjects of medicine and more especially the introduction of technical methods of research, made it necessary to man medical schools with specialists—all of them more or less imbued with that kind of spirit which places opportunities for scientific inquiry above those which lead to augmentation of income.

The period of the missionary professor in our medical schools was a brief one. The war brought about a financial crisis in the schools and the State began to take a hand in their affairs. This intervention was impelled by two motives. There was, in the first place, a "heart" motive—the humanitarian principle that the poor should have, of its own right, as free an access to the best available means of treatment as the rich. The second was a "head" motive—namely, that every advance in medicine brought a clear gain to the public at large—which is the State. Through State subsidies, dispensed by various Government departments, but particularly by the University Grants Committee, it became possible to staff hospital schools and certain hospital services with medical men who could devote their lives to special branches of medical knowledge. Government has provided the sinews of war and the vanguard of the medical army presses forwards at an unprecedented pace, but neither Government nor any power can determine or regulate the direction of the advance; that depends on what happens at a thousand points along the fighting front. Of one thing, however, we can be certain: every advance made in our medical schools will have its repercussion in the Harley-street quarter of our larger cities. The initiative has passed, or is passing, from the clinician to the laboratory worker; the laboratory has become the "pace-maker" of medical progress.

The Divorce of Research from Teaching.

My aim is to ascertain how far Spencer's law of progress helps us to understand developments which are happening under our eyes in our medical world. There has been an unparalleled increase in our knowledge; that has been accompanied, as Spencer postulated would be the case, by a necessary increase in specialisation. In our present ranks I see a separation of duties, a division of labour, which although I know it to be inevitable, yet fills me nevertheless with some pangs of regret. It is the separation of teaching from research. Time was when games were the pastimes of amateurs; to develop games to their highest pitch the professional became nesessary. It was also so with research; it was the pastime of the amateurs. Fifty years ago, if a medical man had a bent for investigation, he sought for a teaching post which would permit him to earn his bread and butter and at the same time offer him the opportunities he desired. Such a man became a source of inspiration to his students—particularly to his best students. To gain his end, and for the advantage of his subject, he was willing to offer up his wife and family as an economic sacrifice. There was in these sturdy pioneers a quality which commands our highest respect and we shall say good-bye to the type with the utmost regret. Go it must I fear; the imperious law of progress, which dominates science as well as sport, demands the replacement of the amateur by the professional.

Professional Research.

The introduction of professionalism into medical research has been made possible by subsidies from State as well as from private sources. That such endowments are speeding up the rate of medical progress there is no doubt; we have only to consult the pages of the annual reports issued by the Medical Research Council or to read the address which Sir Walter Fletcher recently delivered before the British Science Guild[2] to have ample confirmation of my contention. The Medical Research Council, and the Royal Society to lesser degree, are, to borrow Sir Walter's simile, watering the tree on which the fruits of Science grow. They have planted in their research orchards only such trees as have proved their bearing capacity and the results are promising. Nevertheless, the gardeners can but tend the trees; they cannot change their nature nor alter by regulation the kind of fruit they will produce. They can but water the ground and hope in the autumn to gather a profitable crop.

The introduction of professionalism into research illustrates very well a corollary of Spencer's law of progress. This far-seeing Victorian realised that every new departure, every discovery or advance, was attended by a multitude of secondary effects. The segregation of our most gifted investigators is impoverishing the medical staffs of our universities and schools. Our best teachers desire to be relieved

[2] See Nature, 1929, cxxiv., 795; also Brit. Med. Jour., 1929, ii., 993.

of the duties of their office in order that they may devote their whole time to experiment or other forms of inquiry. The gift of teaching, of inspiring young men, of collating and desseminating knowledge, is being ranked below that of the ability to research. The ultimate result of assigning an inferior position to the teacher and to the bookmaker is as likely, in the long run, to impede the progress of medicine as to accelerate it.

Results of Progress on the Output of Medical Literature.

Another result is a curious one. So prolific is the output of published researches from our laboratories that a regiment of specially trained men has become necessary to deal with it and make its assimilation by the medical profession possible. How great that output has become may be seen from recent numbers of the *Quarterly Cumulative Index Medicus*—for which we are beholden to our brethren in America. There are now over 2000 medical journals and periodicals; to index the articles appearing in these journals in the first six months of 1929, and the titles of medical books published in the same period, required 100,000 separate entries—these entries filling a volume of 1311 pages. A friend, who has confined his researches to a small but important gland of the body, told me that the literature relating to it had become so vast that he could read only part of it. And yet the progress of medicine demands that the output will keep expanding at an ever-increasing rate and specialisation in research becomes more and more necessary.

There is no Alternative.

What, you may ask, is to be the end of it all? There is no turning back; we must press forwards. Will then our specialisation reach such a growth that, like the monstrous antlers of the Irish deer, it will sap and endanger the life of the whole body of medicine. There is a safeguard. When our specialisation reaches a stage at which its upkeep passes beyond the powers of the public and private purse, then perforce we shall have to limit our ambitions and discover more economical methods of attaining our ends. As yet we are not within sight of such a crisis.

Coördination is a Necessary Constituent of Progress.

Up to this point I have been discussing the manifestations of progress as seen in the Harley-street quarters of our greater cities, in our medical schools and hospitals, and in our subsidised laboratories. In all three quarters we find medical men pressing forwards in search of new funds of knowledge and as they press becoming subdivided more and more into separate groups. We have, in these instances, been studying only one of the factors of medical progress; there is another which Spencer perceived was equally inevitable. Specialisation, if it worked unchecked, would terd to break up our medical forces and dissipate their strengtn in confusion. Hence we find, in the progress of our profession, just as in the evolution of the earlier animal organisations, there comes into play certain influences, exerted by a crude form of nervous system. An astute student of the evolution of medicine, if he had visited London in 1880, would have perceived that this centre had already come into being in the form of a Department of State, situated in Whitehall—the Local Government Board. He would have found London already divided into 52 districts—each with a medical officer of health—controlled more or less indirectly by the nervous centre in Whitehall. All England, Wales, and Scotland had then become so divided and a multitude of medical men, most of whom while still continuing to attend to their patients, served also as members of a health army, and carried out a policy formulated or suggested in Whitehall.

The Process of Integration.

Unification or integration is just as necessary an ingredient of "progress" as the specialisation or separation. The influences which tend to bring about the unification of our medical army, like most of the inventions which alter medical practice, arise not inside our medical ranks but outside them. Before the middle of the nineteenth century it became evident to British statesmen that the country could not drift along exposing itself to plagues and pests, to contaminated water and adulterated foods, to overflowing cesspools, and to drains which led nowhere. Government began tentatively by calling into being a new kind of medical specialist—health officers. Presently it was found to be necessary to coördinate the activities of the men so enrolled. Even in 1880 this brain, then represented by the Local Government Board in Whitehall, was a small and simple fashioned organ. The deliberative and executive areas of its cortex were composed of laymen; 11 medical officers entered into its texture and were relegated entirely to the sensory or recipient areas. They were advisory in function at the best. No doubt the reformers who placed all our public health acts on the Statute book had to fight hard and long; they fought with head and heart, and deserved their victory, but as they gained it, it never occurred to them they were being impelled by the force of circumstances and were unconscious exponents of a scheme of evolution. Health reformation was initiated outside the ranks of our profession, but it introduced into our ranks the first step towards their unification.

We are the Slaves of Circumstance.

What I am seeking to make clear is that in all our advances we are the slaves of circumstance rather than masters of our fate. You may ask: Does not the Ministry of Health which succeeded the Local Government Board in 1919 determine the direction in which we shall advance? Lately I listened to a speech which was broadcast by an able member of Sir George Newman's staff—Dr. T. Carnwath. In this speech the policy of the Ministry of Health was outlined. The Ministry watches how health measures, recently sanctioned by Parliament, work out in practice. Defects become apparent, the Ministry studies how they can be mended. Local authorities may apply for a special bill to meet some local need; if leave is granted, the Ministry notes the effects. If benefits accrue, then steps are taken to extend them to the whole country. The Ministry does not create its opportunities; it waits until they come and then utilises them for an "advance." Sir George Newman and Sir Walter Fletcher have both to wait for their opportunities. They wait patiently for them and then when they occur, apply their genius in utilising them for the improvement of national health.

Progress Implies an Increasing Integration.

Every step taken by Parliament leads towards a more perfect unification of our British medical army—in which 54,000 recruits are now enrolled. We are far enough away from the angry discussions which arose in our ranks when Mr. Lloyd George successfully carried the National Insurance Act of 1911, to take a philosophical view of what then happened. We see now that it was the inevitable that happened; it was but another turn in the screw of that evolutionary movement which tends towards the unification—the integration of medicine. It was a continuation of that "policy" of the nineteenth century which broadened the franchise to its present limits, gave us compulsory education, established the medical inspection of schools, and more recently gave services for the welfare of mothers and babies. The Local Government Act which now brings the staffs of our hospitals more directly under a central authority is but another turn of the same evolutionary wheel. The art of healing, in its modern development, is going steadily through the stages which transformed a brood of discrete independent protozoa into the coördinated complexity of cells which form the body of a living animal.

The Law of Evolution.

In this lecture I have been applying a law—the law of animal evolution—to the complex affairs of modern medicine. Given human nature as it is—a nature

which demands and ever will demand—that the poor must and shall have access, so far as health is concerned, to all the privileges the rich can buy—that, at all costs, suffering must be relieved, then medical progress must go on and follow the path already chosen. Further progress consists, in our modern interpretation, of an ever-increasing degree of specialisation and in an ever-increasing degree of coördination or unification. We cannot escape State control in the long run—however much we may regret the loss of personal liberty which is thereby entailed. What I would especially lay stress on is that medicine is not so free to choose its path into the future as most of us think it is. We may mould circumstances to our wills on some occasions but in most we are carried along in the irresistible current of events. I do not mean we should, like fatalists, cease to strive to steer a course. Nevertheless, in things medical, as in all mundane affairs, the main feature of the law of evolution is its inexorability.

An Address

ENTITLED

WHAT CAN WE EXPECT FROM RADIUM IN THE TREATMENT OF CANCER?*

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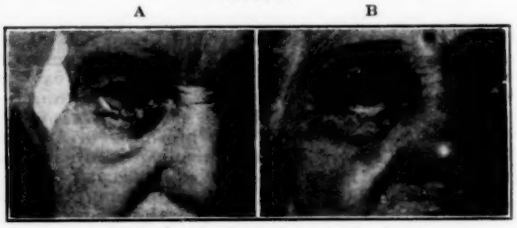
ALL therapeutic methods pass through periods of exaggerated enthusiasm alternating with periods of unjustified scepticism, and from time to time it is important to get a clear, unbiased view of things as they actually are and the results that may be expected. Statistics may be made to prove anything, but for radium treatment there are records collected under such very rigid conditions that they might well serve as an example in other fields of medicine, and it is remarkable how similar are the results obtained in the various big radium clinics, although the methods used are entirely different.

We do not know anything definite about the intimate phenomena of the effects of radiation on living cells. It is probable that the biological effects are due to ionisation caused by photoelectrons and Compton electrons produced in the tissues under radiation. Many authors believe that there is an increase of permeability of the cell membrane, and it is certain that the protoplasm undergoes certain modifications. Numerous histological researches have shown the particular effects on the nucleus. At the Brussels Centre, Dustin has made large numbers of biopsies—more than a hundred in certain cases—and determined the variations of the karyokinetic index as a function both of the dose received and the time elapsed since irradiation. He has observed a strict parallelism between the curves of mitoses and the clinical effects obtained. The histological effects of X rays and gamma rays are very similar. Three different stages can be observed. During the first stage the number of mitoses decreases considerably and in favourable cases they disappear completely. This stage begins a few hours after irradiation and lasts from two to seven days according to the nature of the tumour and the dose of radiation applied; it is followed by the appearance of a large amount of pyknotic debris in the tumour. The principal feature of the second stage is the appearance of a wave of atypical mitosis lasting a few days. This wave seems to be an unavoidable sequel to the first stage, whether radiation is continued or not; nor can the continuity of irradiation shorten its evolution. These atypical mitoses are followed by total or subtotal mitotic arrest. The third stage is characterised by the appearance of cellular monstrosities, very marked in squamous-cell epitheliomas, less so in cylindrical epitheliomas. At this time the tumour diminishes in volume and its disappearance is accompanied by cellular lyses and invasion by poly-

FIG. 1.



Epithelioma of eyelid (A) before, and (B) after treatment.

nuclear neutrophil cells. Either all the cancerous cells are affected and destroyed during the three stages which means complete cure, or the majority of the cells are killed and the surviving ones embedded in sclerotic tissue where they may remain inactive for a very long period; or the mitotic arrest is sooner or later followed by a recurrence.

One of the most striking features of recurrence is a hyperkinetic stage. The divisional activity of the cells is then invariably higher than it had been in the primary tumour before any treatment. Another feature is a relative diminution of radiosensitivity of the cancerous cells; mitotic cells are still sensitive to radiation, but it is much more difficult if not impossible, to ensure complete mitotic arrest. Certain cells seem to have become immune to radium and will give rise to new recurrences. It is impossible histologically to foresee the time of recurrence; for as soon as it is exposed to radiation the whole kinetic rhythm of the tumour is upset for a long time. The process varies according to the histological nature of the cancer. Squamous-cell epitheliomas show the three typical stages, the number of mitoses falling either rapidly or by bounds. These phenomena are usually followed by a strong "evolutionary maturation" and the arrest of division involves these cells in a differentiation that kills them. The cancers of the digestive tube form a much less homogeneous group than the squamous-cell epitheliomas. The differences are particularly marked between the various kinds of tumours of the rectum. In adenocarcinomas the rapid maturation is almost totally absent. This is probably one of the principal explanations of the radio-resistance of tumours of the digestive tract. An epiderm cell engaged in keratinic differentiation may give rise to a few atypical mitoses but will never constitute a fertile stock. On the other hand, a mucous cell may, upon finishing secretion, come to a glandular rest and then start again on its karyokinetic activity. In most of the adenocarcinomas it is very difficult to stop the normal mitoses by radiation. Mitotic activity starts again more rapidly and more violently than in the case of the squamous-cell epithelioma, and the waves of atypical mitosis are much less striking.

These histological researches explain why squamous-cell epitheliomas respond more favourably to radiation than adenocarcinomas. But it is not sufficient for a tumour to be radio-sensitive in order that the patient may be cured by radiation. It must also be accessible and the organ involved must be able to stand the treatment. It is easy, therefore, to cure epithelioma of the skin, penis, lips, buccal mucosa, tongue, and uterus, but results are much less favourable in epitheliomas of the pharynx and œsophagus.

* Delivered at the University of Sheffield, in connexion with the Yorkshire branch of the British Empire Cancer Campaign, on May 6th, 1930.

The methods in use at the present time are: 1. Surface applications at various distances from the skin. 2. Interstitial irradiation obtained by needling the tumour. 3. Intracavitary methods in which radium is introduced into the natural cavities. 4. Distance treatment by the "bomb" method (telecurietherapy).

1. Cancer of the Skin and Lips.

Although certain authors report excellent results from rontgentherapy alone, recovery seems more certainly and more regularly obtained by using radium than by using X rays. Cases of spindle-cell epithelioma known to be less radio-sensitive to X rays heal in just as large a proportion as those of basal-cell epithelioma when treated by radium therapy. Why is radium superior? Is its superiority due to the shorter wave-length of gamma rays and are the biological effects of radium different from those of X rays? Or is the better result due to the difference in the time of application, that is to say, to the fact that radium is continuously applied for several days, whereas radiation by X rays lasts a few minutes only? The time of application certainly has considerable influence. According to Regaud, tumour cells are radio-sensitive during cellular division only. A neoplasm composed of short-lived cells dividing at short intervals is more radio-sensitive to a short irradiation than a cancer composed of cells dividing at longer intervals, for the evident reason that a larger number of cells in mitosis are affected by radiation. Mascherpa has shown that the time between two subsequent mitoses is 10 to 12 hours in basal cell epithelioma and 8 to 10 days in spindle-cell epithelioma. The difference in radio-sensitivity of the two varieties of epithelioma would thus disappear as a consequence of continuous radiation. According to recent research work by Jona, Jüngling, Glasser, and Stahel, it seems probable that, in order to produce the same amount of biological

Fig. 2.

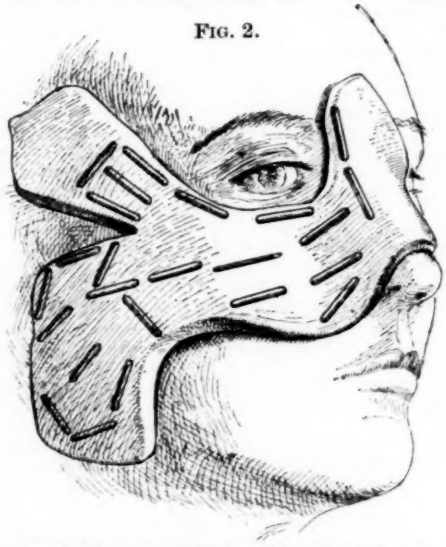


Diagram showing arrangement of radium tubes in a mould applied to the face.

reaction, such as an erythema of the skin for instance, it is necessary to apply to the tissues a much larger amount of energy in the form of gamma rays than of X rays. The proportion is about one to four. The energy of the quanta may also have an influence.

The technique we employ is determined by the localisation and clinical form of the tumour. When we have to deal with a small superficial lesion in a part where radiation must be strictly limited on account of the proximity of especially sensitive organs, we sometimes use needling, that is to say, interstitial radiation. A typical case for this treatment is a small epithelioma of the eyelid. By this method of radiation the tumour tissues absorb a very large amount of energy in the immediate vicinity of the needle, and lesions of the sensitive parts of the eye, viz., the conjunctiva and the cornea, can be avoided (Fig. 1). When the lesion is larger but still superficial, and situated in regions easily accessible to radiation such as the cheeks, the forehead, or the chin, we apply to the surface a certain number of needles embedded in a cast of radioplastin, moulded on to the tumour. In this juxta-cutaneous irradiation the surface tissues absorb a large amount of energy, whereas the subcutaneous tissues are much less affected.

When the tumour is infiltrating it is necessary to put the radium at a greater distance from the skin so as to ensure more homogeneous radiation in the depth of the tissues. Measurements show that whenever radium is placed at a short distance from the skin, the curve of absorbed energy is very unequal and the radium must be applied from a distance of 1 cm., or preferably 2–3 cm., to make the irradiation homogeneous. The distance between radium and skin is ensured by a moulding of Columbia wax or radioplastin, 1 to 3 cm. thick and moulded on to the tumour while warm (Fig. 2). To discover the most favourable arrangement of the tubes on the surface of the moulding may be a complex problem and take considerable time. According to a method perfected by Prof. Stahel, physicist to the Brussels Centre, the doses applied to the skin are calculated in units of energy absorbed per cubic centimetre of tissue. We hope that some day this method may be adopted generally. The unit we have adopted is the erg, the energy unit of the C.G.S. system, and we express the energies absorbed in ergs/c.cm.

A dose of 450,000 ergs/c.cm. produces slight erythema and pigmentation. This reaction is practically the same as the one obtained in deep X ray therapy after application of 600 r. international given in one séance (180 Kv. filtered by 0·5 mm. of copper and 1 mm. of aluminium). For X rays, however, this reaction is produced after administration of 96,000 ergs/c.cm. only. A dose of 550,000 ergs/c.cm. causes a frank erythema not followed by desquamation, but followed by brown pigmentation. A dose of 600,000 ergs/c.cm. causes a deep red erythema appearing at an earlier stage and followed by slight desquamation and deep pigmentation. A dose of 700,000 to 900,000 ergs/c.cm. causes strong radio-epidermitis with formation of blisters and very deep pigmentation. It is the maximum dose that we use in treating skin tumours.

The results, for cases without glandular metastasis, are very encouraging. We cure about 90 per cent. of cutaneous cancers of the face and lips. Of the deeply infiltrating tumours we cure about 50 per cent., but this last class includes a large percentage of hopeless and quite inoperable cases. One may say that cancer of the skin is never too large nor too advanced for treatment by radium therapy.

A patient was treated for a large basal cell epithelioma involving the greater part of the left side of the neck; the sternomastoid muscle was partly destroyed and the carotid arteries were barely covered by a thin layer of tissue. A cast was made in radioplastin and radiation was effected at 2 cm. distance. The amount of energy administered to the middle part of the lesion amounted to from 700,000 to 800,000 ergs/c.cm., and on the border of the tumour from 600,000 to 700,000 ergs/c.cm. The lesion was completely healed eight weeks after treatment.

2. Cancer of the Tongue.

Cancer of the tongue is a form of cancer that has been willingly handed over by the surgeon to the radiologist. Surgical intervention causes an extensive mutilation, which patients desire to escape; the age may contraindicate the operation; the pulmonary complications are frequent, and not always to be avoided even by the use of local anæsthesia; and even if operation is successful, local and glandular recurrences only too often cause terrible deaths. Tongue cancers are not radio-sensitive; they are nearly always spindle-celled, and much more seldom basal-celled epitheliomas, and mixed varieties are common. Tumours taking origin in the lingual glands are very rare. The radio-sensitivity of glandular metastases is even less than that of the primary lesion, a fact which unfavourably influences statistics to an enormous extent, even where it has been possible to cure the primary lesion

After a first treatment, acquired radio-resistance is very marked, and we prefer the diathermy loop to a second radium application when the recurrence is not too large. Nevertheless, in certain favourable cases a second treatment with radium may prove successful. The radio-resistance of cancer of the tongue accounts for the failure of deep X ray therapy. Direct radiation of the tongue with X rays has been tried, but the technique is very difficult and can only be applied in exceptional cases. The technique of transcutaneous X ray radiation of the tongue has been carefully worked out by Jüngling. By means of mouldings of radioplastin he gives a geometrical shape to the region of the neck, thus greatly facilitating the construction of a radiation scheme. It is evident that the whole region must be radiated in a very homogeneous manner while making due allowance for the protection of certain especially sensitive organs such as the salivary glands, the lower maxilla, and the thyroid cartilage. Heavy radiation of the salivary glands may stop their secretion absolutely. This seriously affects the general health of the patient, and it is necessary to preserve at least one of the large salivary glands. Too intense radiation of the lower maxilla causes radio-necrosis, which may develop a few months after radiation as the result of a slight trauma, such as the extraction of a tooth, or even spontaneously. The bone is very sensitive to radiation and doses which only cause atrophy of the skin without ulceration may lead to complete elimination of the maxilla through obliterative endarteritis and subsequent necrosis. Late radio-necrosis of the thyroid cartilage must also be carefully avoided, as it may cause death.

For these technical reasons and owing to the bad results obtained by deep rontgentherapy, most authors prefer local radium therapy. It is only under special circumstances, when it is impossible to use radium on account of localisation at the base of the tongue or the extent of the lesions, that it is advisable to use radiation by means of strongly filtered X rays, the application beingspread over a long period, according to the technique perfected by Coutard. These

FIG. 3.

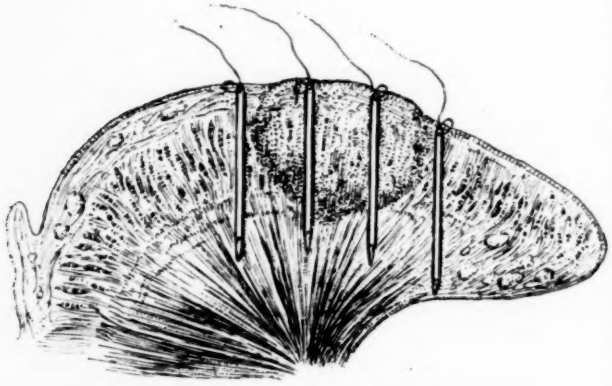


Diagram showing insertion of radium needles in the tongue.

patients may also derive benefit from telecurietherapy by means of the radium bomb, placed at 10 or 12 cm. from the skin.

The methods of radium therapy of cancer of the tongue have been modified considerably. Formerly radium was applied to the surface, but it is now generally introduced into the tumour by platinum needles; the method was invented and perfected by Regaud. Only where the tongue is completely involved and when needling is impossible is surface radiation by an ebonite support useful palliative treatment. Capillary glass tubes filled with emanation have been used; they remain in the tongue permanently. Radio-activity of emanation drops to one-half its strength in 3¾ days and is reduced to about one-tenth of its original intensity after 13 days. These seeds measure about 2 mm. in length and a large portion of the beta rays pass through their glass walls, which are only 0·2 mm. thick. The disadvantages of the method are largely due to lack of screening; beta rays produce necrosis and destroy healthy tissue as well as the neoplasm. The selective effect of the gamma rays is thus completely lost; moreover, radiation is not homogeneous and, although the results reported by Janeway and Quick are interesting, the method appears to have no future.

FIG. 4.

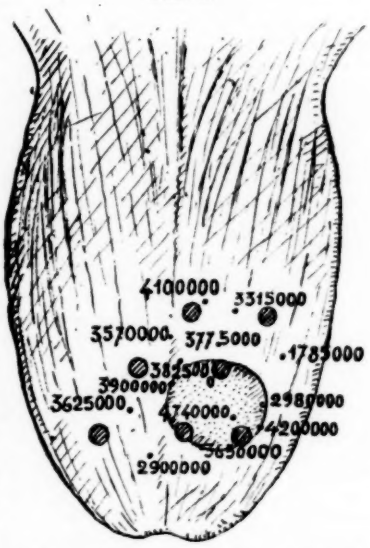


Diagram of central horizontal section of tongue showing amounts of energy absorbed from radium needles in and around a tumour.

Platinum seeds seem to be more useful. They can be used where it is impossible to introduce needles, such as cancer situated at the very base of the tongue. They may be taken out or left in place.

The technique of needling is very simple. After thorough cleansing of the mouth, extraction of all decayed teeth and also of all healthy teeth in contact with the lesion, and removal of all metal pieces, we secure local anæsthesia with novocain. A thread of thick silk is put through the tip of the tongue so that it can easily be pulled out of the mouth. The needles are introduced into the growth at a distance of 1 cm. from each other and into the healthy tissue around the growth at a distance of 1 cm. from the tumour (Fig. 3). The eye of the needle is provided with a double thread. The thin thread is used for suturing the radium needle to the tongue; the thicker thread is brought out of the mouth and attached to the cheek. Needling is quite easy when the lesion is situated on the margin or on the back of the tongue, but very difficult or even impossible when the tumour is at the base. The needles usually contain 1·33 mg. of radium element, with an active focus of 20 m., and screened by 0·5 mm. of platinum. The application is calculated in such a way that each cubic centimetre of tissue of the tumour receives a dose equivalent to from 0·85 to 1·0 millicuries destroyed (mc. d.)—i.e., from 100 to 132 milligramme hours (mg.h.). Generally speaking, the period of radiation varies between 4 and 8 days. Three weeks after this treatment the lesion and the adjoining tissues are covered with a white coating; this reaction comes to an end in six to eight weeks. Although the amount of energy absorbed is considerable, cicatrisation is not followed either by loss of substance or by considerable fibrosis.

A deeply infiltrating tumour covering approximately a surface of 1·5 cm. was treated by seven needles of 1·33 mg. Three needles were planted into the tumour and four in the surrounding healthy tissue. The needles remained in place

for eight days, and the quantity of energy emitted at the source equalled 13·44 mc. destroyed, or 1785 mg. h. Under these conditions the calculations made by means of the isodoses plans show that at the level of the central horizontal section (Fig. 4) the amount of energy absorbed varies between 3,000,000 and 5,000,000 ergs/c.cm. in the tumour itself and still amounts to 3,000,000 ergs at a distance of 1 cm. from its border. At the surface of the tongue (Fig. 5) the amount of energy absorbed by the tumour varies between 2,000,000 and 2,500,000 ergs/c.cm., and is equal to 1,500,000 ergs/c.cm. at 1 cm. from the limit of the tumour. The tumour thus absorbed quantities of energy amounting to up to ten times the value of an erythema dose in the depth and from 2½ to 4 times the value of this dose at the level of the mucosa. The progress of cicatrisation was normal. The patient died eight months afterwards of brain metastasis without recurrence of the tongue lesion or any radionecrosis.

FIG. 5.

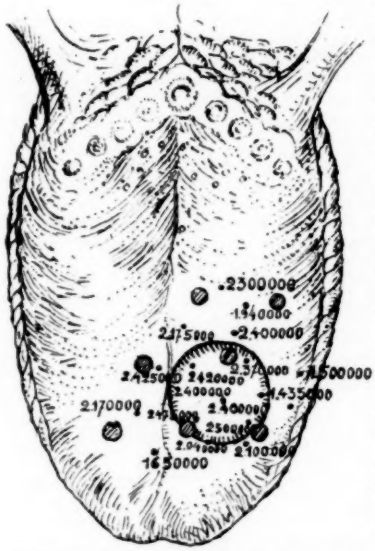


Diagram showing absorption of energy at surface of the tongue.

Regaud is the originator of this method and has published the most reliable statistics. Amongst 287 cases treated from 1920 to 1925, 80 per cent. of which were inoperable, 27 per cent. have completely recovered, and 20 per cent. of the patients recovered locally but died afterwards of glandular recurrences. In about 50 per cent. of all cases, therefore, the local lesion can be cured, and in 25 per cent. of all cases, both operable and inoperable, permanent recovery is ensured. These figures compare favourably with surgical statistics.

Glandular metastases considerably darken the prognosis. We have treated them by many methods without much success. Radiation before or after block dissection does not give reliable results, whether applied by X rays, "collars" of radium, or telecuriethérapy with the bomb. We have lately adopted a radio-surgical method based on a block dissection followed by the introduction of needles covered with rubber sheeting into the whole area threatened by recurrence. This method has been employed for so short a time that it is not possible yet to have a definite opinion on its efficiency.

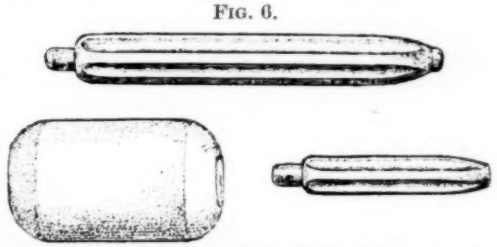
3. CANCER OF THE UTERINE CERVIX.

Cancer of the uterine cervix was one of the first deep cancers successfully treated by radium therapy. The good results obtained are due primarily to the anatomical disposition of the organ, which is especially favourable to the application of radium, as well as to the considerable amount of radiation that can be applied to the mucosa of the vagina and the uterus and to the uterine muscle. Deep X ray methods have also reached a high degree of perfection, especially in Germany, and excellent results have been obtained by using deep X rays alone. Far from being opposed to each other, the two methods are probably destined in the future to work together more and more.

Statistics concerning cures of cancer of the cervix should only include cases that have been under observation for at least five years, and the methods used in the various centres should not change if we are to get a good idea of their value. At the Brussels Tumour Centre we have maintained practically the same technique since October, 1925, although the results published by other clinics sometimes tempted us to modify it. It differs from Regaud's method only in details. It is an "intra-cavitary" method; that is to say, local radiation is effected by introducing radium tubes into the uterus and the vagina. To this radiation by gamma rays we add transcutaneous radiation by deep X rays. It may seem tempting at first sight to destroy an epithelioma of the cervix by introducing needles directly into the tumour. The doses of energy absorbed by the cancerous tissue when treated by needling are certainly very considerable, but various disadvantages have led us to abandoned this method, which is still used in certain centres. Those who tried it first, Regaud and his associates, also Cahen and Delporte, have admitted its disadvantages—viz., the difficulty of disposing the needles correctly, the impossibility of judging the size of the tumour, and the danger of coalescence of the needles which, when the tumour is destroyed, come together in a bundle and produce irregular irradiation and sometimes radionecrosis.

Patients undergo a special examination by the surgeon and the radiologist, and we invariably practise a biopsy at the time of the first examination. Before radium treatment they are watched for 24 hours at least. If there is any fever we put off the treatment and try to bring about general and local disinfection by all means at our disposal. We do not apply radium until the temperature has become normal. If fever continues in spite of our efforts, we apply X rays before local treatment, which sometimes succeeds in cleaning up the local lesion but may cause narrowing of the cervical canal through sclerosis, and so make intra-uterine treatment more difficult. Dilatation of the cervix sometimes causes a rise in the temperature, and we have reduced this manœuvre to a minimum by inventing a small apparatus which differs slightly from the intra-uterine tubes used in other clinics. It is a simple aluminium tube, the walls of which are grooved to ensure drainage. One end is tapered so that it can be inserted very easily into the uterus with a minimum of dilatation. The filtration of the aluminium is negligible and the tube only serves to maintain the necessary distance between the radium and the mucosa of the uterus. There are two models of this intra-uterine tube, —viz., one holding a tube of 6·66 mg. filtered by 1 mm. of platinum, and another holding two tubes. We use either the one or the other according to the length of the uterine cavity measured by means of the hysterometer. Vaginal radiation is effected by means of two tubes of 13·33 mg., screened by 2 mm. of platinum; they are contained in cork stoppers (of the Regaud type) which ensure a distance of 1 cm. between the walls of the tubes and the tissues (Fig. 6).

FIG. 6.



Aluminium tubes for insertion into the uterus and cork container for vaginal application.

When the condition of the cervix uteri allows us to find the intracervical canal easily, the intra-uterine and vaginal tubes are placed at the same time. When it is impossible to introduce the uterine tube, the two vaginal tubes are put in first in the hope that the cervical canal may become more easily accessible when a portion of the tumour has disappeared.

Recently we have come more and more to use this two-stage application. The intra-uterine tube is left in situ for nine days; the energy emitted at the source equals 21·6 mc.d., or 2877 mg.h. The vaginal tubes are left in place five days, the energy emitted at the source being 24 mc.d., or 3200 mg.h. For local treatment we thus apply 45·6 mc.d., or 6077mg.h. These doses are somewhat lower than those recommended by Regaud, who applies to the tumour 60 mc. in five days in all (Fig. 7).

The direct measurements of energy actually absorbed by the tissues, determined according to Stahel's method and expressed in ergs/c.cm., show interesting curves. These measurements, taken in a water phantom, show that the uterine mucosa absorbs up to 5,000,000 ergs/c.cm. in the immediate vicinity of the intra-uterine tube—viz., eight times the erythema dose. The vaginal mucosa absorbs between 2 and 3 million ergs/c.cm. The cervix absorbs 2 to 5 million ergs/c.cm. The absorption of quantities of energy amounting to eight times the value of the erythema dose does not cause any exaggerated reaction. Its climax is usually reached during the course of the second week, and cicatrisation comes to an end after six weeks. The distribution of the isodoses at the level of the uterus and the parametria shows how quickly the intensity of the absorbed energy of radiation decreases; at a distance of about 4·5 cm. from the cervix the intensity of radiation at the level of the parametria equals the value of a single erythema dose —viz 600,000 ergs/c.cm.

FIG. 7.

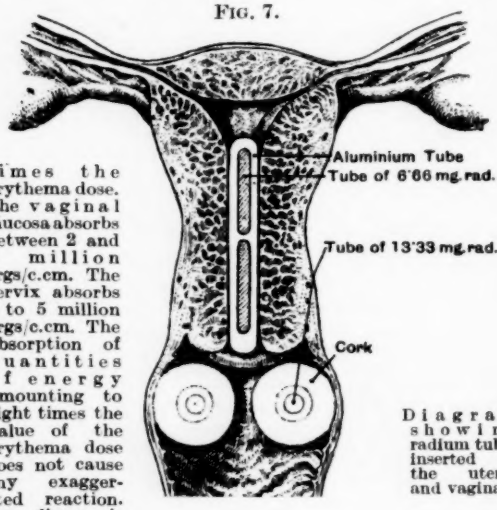


Diagram showing radium tubes inserted in the uterus and vagina.

These measurements show that it is logical to complete the intra-cavitary application by transcutaneous treatment, either by X rays or by a radium bomb (telecurietherapy). At the Brussels Tumour Centre we apply deep rontgentherapy according to a plan of radiation determined for each patient by Holfelder's method. It is applied to the patient one month after local treatment. The voltage equals 186 Kv. (constant tension); the filtration is 0·5 mm. of copper and 1 mm. of aluminium. By each of the four "portals of entry" 800 r int. are applied. The treatment is spread over eight days. We estimate the quantity thus applied to the whole tumour at 800 r int., to which the amount of energy applied by radium must, of course, be added. Most authors recognise the superiority of such a combined method to both the local and transcutaneous methods employed separately. Forssell, however, relies mainly on local treatment, and Wintz of Erlangen has recently reported extraordinarily favourable results obtained by deep rontgentherapy alone.

Telecurietherapy with the bomb of 4 g. or more radium may appear at first sight to be the ideal method for treating cancer of the uterus, combining both the high degree of homogeneity of the X rays and the lesser wave-length of the gamma rays. All who have tried this method, however, seem to have come back to the local applications. It will probably never be possible to apply to the cervix, by a method that necessitates the irradiation of the skin, the very high doses that can be applied by the intracavitary method, even with cross-firing. Used like X rays, as a complement to the local irradiation, however, the method has given good results.

Hysterectomy after radium therapy has not given us very good results, and we have, therefore, given it up entirely. A radio-surgical method recommended by Cahen and Delporte consists in the introduction, after laparotomy, of radium needles into the parametria and the uterus, when local application has not been sufficient to cure the patient. In the hands of its authors this method has given very good results, for in inoperable cases they have obtained up to 40 per cent. of cures.

The technique is of primary importance, but the measure of success is influenced by other causes such as the general and local condition, the degree of infection, and the state of the adnexa. Abnormalities in shape and a previous operation, such as hysterectomy, may render the application of radium very difficult and sometimes even impossible. Previous treatments either by X rays or radium also render the prospect of success very slight on account of radio-vaccination of the tissues.

THE RESULTS OF RADIUM THERAPY IN CERVICAL CANCER.

It is now possible to appreciate the exact value of the method, thanks to the work of the League of Nations subcommittee for radiotherapy of cancer.

These statistics, published by Forssell and Regaud, prove that it is possible to cure 40 per cent. of all the operable cases and to save 16 per cent. of all inoperable cases, and it is certain that their results will improve in the future, seeing that the techniques have been perfected since 1923, and that future statistics will reflect these improvements. The statistics which we have provisionally established for the Brussels Centre cannot be compared to the five-year results of Regaud and Forssall. We do not record five-year cures, and it is certain that our percentage of cured cases will decrease in the future.

In 1925 ten cases were treated; four were operable, and of these three have remained well for four years. Three were border-line cases; they are all free from symptoms after four years. Two were frankly desperate cases; they both died during the first year. The total survival after four years is, therefore, 60 per cent. In 1926 we treated 49 cases, of which 11 were operable; six of these cases cannot be included in the statistics for various reasons, and are considered as lost. Of the remainder, 27·2 per cent. are at present free from symptoms. Of the 14 border-line cases, six (42·8 per cent.) are free from symptoms after three years. Twenty-two were frankly inoperable. Thirteen of them received a palliative irradiation with X rays only and died during the first year, and seven had complete treatment; three are well after three years (42·8 per cent.); two were operated upon after their treatment and are well. Of these 22 inoperable cases, 28·5 per cent. are still living. If we eliminate those who were quite hopeless, and only received palliative treatment, 50 per cent. are well after three years. The total three years' survival, including all cases, is 28·5 per cent. In 1927 we treated 47 cases. Of the 12 operable cases, nine are well, giving a two-year cure of 75 per cent. Of the border-line cases, five are well, giving a two-year cure of 45 per cent. Twenty-two were inoperable; three were well, so that the two-year cure is 13·6 per cent., and the total two-year survival-rate 40·4 per cent. In 1928 we treated 61 cases. Sixteen were operable, and of these eight are well: a one-year's cure of 50 per cent. Of 21 border-line cases, ten are well: 47·6 per cent. Of 22 inoperable cases, ten are living: a one-year's cure of 45·4 per cent. The total one year's survival-rate is, therefore, 45·9 per cent.

Judged on the Stockholm figures, radium therapy of the cervix seems to have some advantage over surgery. We must, however, take into account the fact that the results have been obtained by means of a method that continues to be improved, whereas Wertheim's operation has reached a degree of perfection which it will probably not exceed. Patients hardly ever refuse treatment by radium, whereas they are not always willing to undergo operation.

On the other hand, we must not underrate the palliative results obtained in cases where surgery is helpless. In a large number of cases where cure was not permanent, radiotherapy made life bearable for several years by suppressing the alarming symptoms of hæmorrhage and pain. However, it would be premature to decide at present whether quite early epitheliomas of the cervix should be irradiated or operated. Not until several years have elapsed, and we have a sufficiently large number of operable cases treated by radium therapy, will it be possible to choose definitely between the two methods. Border-line and inoperable cases ought, of course, to be treated by radiotherapy

Influence of Radiation on Other Forms of Cancer.

Radium treatment of cancer of the digestive tract has not given results comparable to those I have outlined above. The epitheliomas of the œsophagus, although radio-sensitive, have up to the present given very bad results on account of the situation of the lesions and the tninness of the œsophageal wall. The introduction of radium tubes into the lumen has not, I believe, resulted in definite recovery in a single case. Our best result—viz., two years' survival—has been secured by transcutaneous irradiation with X rays. It is possible that telecurietherapy may prove useful for this kind of treatment.

Cancers of the stomach and the intestine do not respond well to radium therapy. We have a few interesting inoperable cases improved by rontgen treatment, but here again the time elapsed is too short to warrant a definite opinion. Cancers of the stomach and the intestines are operated upon in the centre as early as possible.

Cancer of the rectum is also very radio-resistant and the results obtained are very unequal. The radio-sensitiveness of these adenocarcinomas is very low, and their destruction often entails lesions of the normal cells which leads to radionecrosis and failure. The method of choice is still surgical operation, and the ingenious method of Neuman and Coryn—the interstitial needling of the rectum wall from the outside after surgical liberation—is only used by us in inoperable cases. This method sometimes succeeds in making cases operable.

We also operate on carcinoma of the breast. For five years past we have been making two parallel series, one including cases of the breast exclusively treated by operation in the general surgical clinic and the other including cancers of the breast operated in the Tumour Centre and radiated after operation by X rays according to Holfelder's method. The technique of operation is exactly the same in both series. The future will show whether or not X rays applied after operation considerably improve surgical results.

To obtain the best possible results from the radium therapy of cancer, certain conditions of research and treatment are indispensable. The technique of radium therapy is not quite so simple as it looks. Anyone can cure with radium a small epithelioma of the skin or an operable cancer of the cervix, but in order to apply proper treatment by radiation to all cases that present themselves and in order to develop and to improve the method, the coöperation of a large number of workers is necessary. In no other branch of medicine is team-work more indispensable. Cancer work necessitates the organisation of large centres of treatment and research, relatively small in number but generously supplied, not only with large quantities of radium and powerful installations of X ray apparatus, but also with numerous laboratories well fitted out and especially with a competent staff.

The Cancer Campaign in Belgium.

The State has encouraged the creation of centres of treatment and research in the four universities and has endowed each centre with the necessary funds for the equipment of deep therapy and radium departments. An annual subsidy calculated on the number of patients treated is also allowed. For the Brussels Centre the Public Assistance, which has the direction of our hospitals, pays the upkeep of 50 beds reserved for cancer patients in the university hospital. These beds are grouped together in two wards. Each university hires radium from the Union Minière and 50 per cent. of the sums thus collected go back to the centres in aid of the research laboratories. The social work, such as the following-up of patients, is organised for the whole country by the National Cancer League. The university also directs the medical and research organisations. In Brussels the anti-cancer centre is under the direction of the professor of surgery, the professor of pathology, and the professor of radiology. The senior professor of surgery, who is also in charge of the general surgical clinic, delegates his senior assistant to be responsible for the surgical and radio-surgical work. This specialised surgeon will probably be definitely attached to the centre in the near future. The pathologist directs all the histological diagnosis and research work. The professor of radiology is responsible for the rontgen and radium treatment and directs the physical and radio-biological researches. He is assisted by two physicists and a full-time assistant who has specialised in radium therapy and in radic-biological research work. On the staff are also a physician, an assistant bacteriologist, and an assistant biochemist. The urologists and aurists of the hospital are also on the Tumour Centre staff. Consultations take place thrice a week; the surgeon, pathologist, and radiologist all see the patients together and decide in common upon the method of treatment.

This organisation has given good results during the four and a half years it has been in operation. The surgeon and the radiologist have ceased to be sworn enemies and have even conceived a certain respect for each other; mutual and unceasing criticism has prevented us from becoming unilateral, and the two methods—surgical and radiological—instead of being opposed, work very smoothly together. It even happens that the surgeon becomes enthusiastic about radium; and I know that I rely more and more upon my colleague's skill. The physician is one of the most useful members of the team; he is responsible for general medical attendance, a most important part of cancer treatment and one that is too often neglected. He also carries out biochemical treatments for patients who cannot be improved by surgical or radiological means.

Although treatment by radiation is being perfected daily, it is reasonably certain that radium will never cure more than a certain percentage of cancer cases. Research work must therefore continue to seek chemical therapeutics which electively influence the cancer cells, or biological means that increase the resistance of the organism. We shall not be justified in speaking of cure of cancer until we have discovered a substance acting upon metastases as well as upon primary lesions. Unfortunately, we are still far from having reached this ideal. Neither copper, selenium, or magnesium have given really stable and scientifically controlled results, and their application to patients who might still be saved by recognised methods is not justified.

In order to enable the organisation of a centre to do really efficient work, it is imperative that the patients be sent at the first stage of their illness instead of when treatment can only be palliative. All those who have organised cancer centres have had to go through the disappointing period when practically hopeless cases only were committed to their care. Happily, confidence has been slowly growing, and we receive ever-increasing numbers of cancer patients who still have a good chance of being cured. It is, therefore, necessary that the general practitioner should work in close coöperation with the staff of the centres. He has the most delicate task of all, upon which depends the final result—viz., early diagnosis. He must educate his patients and encourage them to be thoroughtly examined at the first suspicious symptom; he has to explain the urgency of a biopsy, his rôle is capital and sometimes very difficult. Although a multiplication of centres

of treatment is not always an advantage and has to be limited, on the other hand there will never be too many cancer diagnosis clinics, or, as we call them, "centres de dépistage," where several doctors coöperate and do their utmost to diagnose cancer at an early stage. These dispensaries are in a position to give valuable advice, and can avoid the fatal loss of time that elapses only too often between the first symptom of cancer and its effectual treatment.

THE RESPONSE OBTAINED IN HEALTHY PIGEONS BY THE ADMINISTRATION OF SUBSTANCES EFFECTIVE IN PERNICIOUS ANÆMIA.*

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RECENT work on the treatment of anæmia has facilitated the differentiation of a group of human anæmias which must be regarded as due to the deficiency of some substance essential for the normal production of adult red blood cells. Such anæmias, including pernicious anæmia, are characterised by a megaloblastic hyperplasia of the bone-marrow.[1] The bone-marrow of the healthy grain-fed pigeon is also of this type.[2] It appeared, therefore, possible that the administration to pigeons of substances capable of alleviating a deficiency in man associated with megaloblastic hyperplasia of the marrow might provoke a response in the bird similar to that resulting in clinical cases. If such were the case it might provide a biological test for the potency of these substances.

Intravenous administration of a series of relatively pure liver preparations† known to be effective when given intravenously in pernicious anæmia gave a consistent response in 14 healthy birds. Two pigeons only failed to react to a potent fraction. These two negative results were obtained probably because, owing to scarcity of material, it was only possible to give an extremely small dose. The response was characterised by a rapid increase in the circulating reticulocytes, from an average control level of 9·2 per cent. to one of about 18 per cent. This was accompanied by a pronounced gain in the birds' weight when less pure preparations were used. Similar effects were obtained when liver extract No. 343 (N.N.R.) was given by mouth, except when sepsis was present, which is in agreement with clinical observations.

An analysis of the character of this response is given in the Table. It is clear that though the average pigeons for the height or the reticulocyte rise may agree relatively well that there is considerable variation between maximum and minimum figures independent of the dosage. The same variability is found in the date of the initial rise and in the duration of the response.

Hitherto birds from the market have been used whose age and previous conditions of life are unknown. It is clear that in future more completely standardised pigeons must be used if consistent results are to be obtained. Burn[3] has recently pointed out that all methods of biological assay are liable to such variation unless certain mathematical considerations are taken into account and a large series of animals examined.

No such definite responses were obtained when extracts ineffective in pernicious anæmia were employed. Negative results were also obtained with intravenous injections of sodium chloride and histamine, preparations of both fractions of vitamin B (vitamin B_1 (G), B_2 (F), and liver extract No. 343 (N.N.R.)), in which the active principle has been destroyed.[4]

Table showing Character of Reticulocyte Response in Healthy Pigeons Receiving Liver Extracts Effective in Pernicious Anæmia.

No. of pigeons.	Extract.	Dosage.	Reticulocyte response.				
			Max.	Min.	Aver.	Day initial rise.	Duration.
7	132 E	200–25 mg.	20·9	14	18·2	2	6
1	132 EB	25 mg.	16·4	—	16·4	3	5
1	132 ECDB	25 mg.	18·7	—	—	7	11
1	132 ECDB	10 mg.	17·9	—	—	7	Killed 11th day
2	134 ZHB	10 mg.	22·1	21·0	21·2	5–6	Killed 6th day.
10	343 N.N.R.	1–¼ g.	21·1	15·8	17·28	3–8	4–27

Castle[5,6] has shown that beef muscle previously digested by healthy gastric juice is as effective as liver in pernicious anæmia. Human gastric juice fed to pigeons caused no reticulocyte response but beef muscle promptly did so. Probably the pigeon's gastric juice,[7,8] like normal human gastric juice, can elaborate from beef muscle material that promotes blood regeneration.

The positive action of those substances effective in pernicious anæmia upon the bone-marrow of the healthy corn-fed pigeon would appear to be of biological significance. The results recorded in this preliminary report are not consistent enough to allow final conclusions to be drawn as to the possible value of such experiments as a test for the potency of liver extracts.

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* Read at the meeting of the American Society for Clinical Investigation at Atlantic City on May 5th.

† We are greatly indebted to Dr. Edwin J. Cohn and Dr. Thomas L. McMeekin, of the Department of Physical Chemistry of the Harvard Medical School, who made the liver preparations and supplied them for our experiments. The clinical tests were made on patients under the care of Dr. George R. Minot, who provided necessary information as regards the potency of the different preparations.

FURTHER OBSERVATIONS ON THE ÆTIOLOGICAL RELATIONSHIP OF ACHYLIA GASTRICA TO PERNICIOUS ANÆMIA.*

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OBSERVATIONS have already been reported[1–3] demonstrating that by an interaction of normal human fasting gastric contents and beef muscle, both of which are separately ineffective, a substance is produced which will cause a prompt hæmatopoietic effect and clinical improvement in Addisonian pernicious anæmia

* Read at the meeting of the American Society for Clinical Investigation at Atlantic City on May 5th.

comparable to that obtained with liver feeding. The nature of this reaction has now been studied by means of observations upon 15 additional cases of pernicious anæmia in respect to the nature of (1) the extrinsic factor of the reaction contained in beef muscle, and (2) the intrinsic factor present in normal human gastric contents.

These observations demonstrate that the proteins precipitated at pH 6 from beef muscle may act as the extrinsic factor. Normal human saliva, and duodenal contents collected by a special technique so as to be free from gastric juice, are entirely ineffective when incubated with beef muscle. Hence, by elimination, the intrinsic factor appears to be secreted by the normal gastric mucosa, as was originally supposed from a consideration of the essential pathological physiology of the pernicious anæmia patient. Further observations have demonstrated that the essential reaction between gastric juice and beef muscle may take place in neutral solution, that heating the gastric juice to 40° C. for three days or to from 70° to 80° C. for one half hour will abolish its effectiveness. If normal gastric juice is treated with casein solution [4] and then with magnesium carbonate,[5] the pepsin and rennin may be completely removed, leaving behind an unknown factor which, however, can react in neutral solution with beef muscle to produce the hæmatopoietic substance. The gastric juice of two patients with blood pictures entirely consistent with the diagnosis of pernicious anæmia (sprue and multiple intestinal anastomosis), both of which subsequently showed a typical response to effective liver extracts, has been found in each case to contain normal amounts of hydrochloric acid, pepsin, and rennin but to be entirely incapable of reacting with beef muscle. The irrelevance of any of the existing tests of gastric function for the detection of the essential factor of the normal gastric juice is thus made clear. Although the nature of the extrinsic factor of the essential reaction is demonstrated to be in all probability protein or a closely related substance, the nature of the intrinsic factor contained in the normal gastric juice remains unknown. However, it is certainly not hydrochloric acid, pepsin, or rennin. It may act in neutral solution and is destroyed by heating as above described.

In contrast to our original negative experiments with pig stomach mucosa after autolysis in acid,[6] it has now been found possible to reproduce the activity of 300 g. of fresh pig stomach mucosa by incubating 25 or 100 g. of this material with 200 g. of beef muscle. These experiments suggest that the effectiveness of pig stomach feeding demonstrated by Sturgis and his associates after our original negative results with autolysed mucosa [7] is the result of post-mortem changes within the tissue similar to physiological reactions occurring between normal human gastric juice and beef muscle. The activity of the pig stomach is furthermore apparently not identical with that of liver since heating the former to 100° C. for five minutes is sufficient to markedly diminish its potency in contrast to the lack of effect on liver extract under similar circumstances.

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ROYAL WEST SUSSEX HOSPITAL.—The feature of the annual meeting on April 8th of the governors of this large hospital at Chichester was the record of the success of the contributory fund which was founded in 1926. The year 1925 closed with a debt on the 12 months' working of the hospital of £2758. Since then in successive years the deficit has fallen to £2639, £1976, £649 and £525, respectively. The contributory fund in its first year produced £178, but last year £2523; and it is estimated that it will provide at least £3000 in the current year.

VITAMIN A AND STREPTOCOCCAL ANTITOXIC IMMUNITY.

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INVESTIGATIONS into the immunity produced in patients after attacks of scarlet fever and diphtheria have shown that a number do not become immune. Such lack of immunity has been investigated by us in connexion with relapses in convalescents.[1] The reason for the failure to develop immunity is obscure. We have suggested elsewhere[2] that it is possibly due, in some instances, to hereditary lack of antibody-producing capacity. Other possible explanations are that there has been an insufficient stimulus to the antibody-producing mechanism or that substances which are necessary for the production of antibodies have been deficient. Vitamin A has been considered an important anti-infective substance, the lack of which predisposes to infections. Whether such deficiency causes lack of sufficient stimulus or whether vitamin A is essential for the production of antibodies and the deficiency of it deprives the cells of a substance which is essential to antitoxin production is not known. The term "anti-infective" was applied to vitamin A in a report based on experimental work in animals by Green and E. Mellanby[3] (1928) who repeated the experiments of previous workers, with the result that their animals fed on a diet deficient in vitamin A died, and post-mortem examination showed the presence of various infective lesions. It has been suggested that infection is associated with a metaplasia of epithelial cells due to vitamin A deficiency. In a further investigation E. Mellanby and Green[4] (1929) undertook a preliminary exploration of the specific action of vitamin A in human infection. They studied the prophylactic and curative effect of vitamin A on pregnant women and in cases of puerperal septicæmia. It is obvious that many pregnant women take a diet inadequate in vitamins, and it would therefore be conceivable that if vitamin A is anti-infective in action these women would be more susceptible to sepsis during the puerperium. Mellanby now reports [5] the complete recovery of eight out of nine cases of puerperal streptococcal septicæmia treated with preparations containing vitamin A. Mellanby and Green had previously suggested [4] that if it is proved to have anti-infective qualities of a curative nature, it must also be of inestimable value in prophylaxis. This form of prophylaxis is too costly, however, to undertake unless some definite results are to be achieved. Mellanby states that the effect of the vitamin was apparently rather to increase gradually the general resistance than to act suddenly, as might be expected in the case of a substance having a specific bactericidal or antitoxic effect, although he also says that he believes that vitamin A plays a part as an anti-infective agent to bacterial infection and has the property of raising the resistance of the body to such infection.

It is difficult, a priori, to see on what grounds it can be held that the ingestion of a vitamin or any food factor can effect a prophylactic action without the stimulus provided by a specific toxin. The conclusion of G. Ramon[6] (1929) was that no production of antitoxin occurs independently of the presence of antigen, specific antitoxin depending upon a chemical nucleus derived from the antigen.

We decided to investigate the prophylactic effect of vitamin A on the antitoxic immunity as demonstrated by the Dick tests in (*a*) a group of pregnant women attending the antenatal clinic, who presumably had no stimulus provided by a specific antigen; (*b*) in patients suffering from scarlet fever who had,

of course, such a stimulus. The preparation of vitamin A which we employed was Radiostoleum, ℿ vi. in capsules. In group (*a*) 221 pregnant women attending the Ilford antenatal clinic were Dick tested. Those who were Dick-positive were ordered radiostoleum in capsules by the mouth three times a day. They were re-tested at monthly intervals until labour occurred, or until the Dick reaction became negative. Mellanby appears to believe that a fortnight's administration of the vitamin would produce an effect in a case of puerperal septicæmia; consequently it would appear that the length of administration in our cases should have been ample to have produced a result. Table I. shows the results of this procedure.

TABLE I.—*Ilford Maternity Home (Antenatal Clinic). Period August 24th to Dec. 2nd, 1929.*

Radiostoleum and Dick Tests.

Result.	Individual cases treated.
Negative	153
Positive (test not repeated)	16
„ (repeated tests)	36
„ turned negative	16
Total cases tested	221
Total positive at first test	68 cases.
Percentage positive at first test	30·7
Repeated monthly tests in 52 cases—	
Percentage of cases turned from positive to negative	30·7
13 of the 16 cases which turned negative, remained negative on repeated tests	25 per cent. of the total positives.
36 cases who were positive at initial test were re-tested at monthly intervals and remained positive.	
Re-tested twice	12 cases.
„ three times	14 „
„ four times	10 „
Total	36 „
All these cases were taking radiostoleum by the mouth ℿ vi. in capsules t.d.s.	
In six of the cases the radiostoleum was not taken quite consecutively.	
16 cases who were positive at the initial test became negative on re-testing; of these 13 remained negative—	
Re-tested as follows—	
Once	6 cases.
Twice	6 „
Three times	1 case.
Total	13 cases.
Three cases were positive at the initial test, became negative at the re-test and returned to positive on further re-testing (two of these cases were re-tested one week after giving a negative test) and remained positive two months later.	

It will be noted that the percentage (30·7) of initial positive results compares with those of Burt-White (27)[7] and Weiss (39)[8]; Kunz and Nobel[9] only found 11·8 per cent. positive (in predominantly city patients). The turnover from positive to negative may be due possibly either (1) to the development of antitoxin in response to an antigen which was latent (a few of the 16 cases developed such conditions as tonsillitis, rhinitis, or influenza; the majority, however, were quite well), this may possibly have been accelerated by the administration of toxin in the Dick test; (2) to changes in the body mechanism due to such causes as change of tonus of the vegetative nervous system and shifting of the hydrogen-ion concentration, as suggested by von Groer[10]; (3) to some specific action of the vitamin A, either with or without a latent antigen stimulus; (4) to a natural variation in streptococcal immunity, people not being persistently immune or susceptible; or (5) to the Dick test not being an accurate estimate of antitoxin immunity.

Table II. shows that the size of Dick reaction varied with the tendency to change over to negative.

No cases with a very large Dick-positive result became negative, and the majority of the cases which became negative were the minimal Dick-positive results. This suggests the possibility that the cases which became Dick-negative were already undergoing a process of latent immunisation. The fact that the administration of vitamin A in 36 cases had not the slightest effect is sufficient demonstration that this vitamin, as with other non-specific substances, cannot cause an appearance de novo of antitoxin.

TABLE II.—*Relationship between Size of the Dick Reaction and Tendency to Turn Negative.*

Cases.	Size of reaction.			
	10–20 mm.	21–30 mm.	31–40 mm.	Over 40 mm.
Repeated positive (36 cases)—				
Largest reaction	1	7	17	11
Cases which turned negative (16)	10	5	1	0

The work of Weiss,[8] who tested patients in pregnancy and during the puerperium, showed that of 100 cases tested, 11 became Dick-negative, while nine which had been Dick-negative in pregnancy became positive during the puerperium. Weiss suggested that there was a variability of the reactions caused by the process of childbirth, but not of any definite direction of the changes. This would appear to give added support to No. 4 of the possibilities enumerated above, and it is quite possible that if we had Dick tested the whole of our cases monthly, we should have found that some of the Dick-negative cases became Dick-positive. In our own series three cases which became Dick-negative subsequently returned to their original Dick-positive condition. We have observed this in convalescent scarlet fever patients both in those treated and those not treated with vitamin.

Burt-White,[11] Colebrook and others performed the Dick test in 26 cases before and after labour, and in one case there was a change from positive to negative result, the puerperium being afebrile. As, however, only one test appears to have been applied to each patient before labour, too much stress cannot be laid on these results.

In order to test the effect of administration of vitamin A in persons who had a streptococcal antigen stimulus, we administered the vitamin to cases of scarlet fever in the Ilford Isolation Hospital. The radiostoleum was given three times a day in capsules of ℿ vi. to 64 cases of scarlet fever, out of a consecutive series of 117 cases admitted during the period August to November, 1929. Dick tests were performed on all cases at weekly intervals; 47 patients received radiostoleum from the day after admission, and 17 began it during convalescence (Table III.).

TABLE III.—*Result of Dick Test in 64 Cases of Scarlet Fever to whom Radiostoleum was Given.*

Repeated Dick tests in convalescence.	On discharge.	No. of cases.
Negative	Negative	20
Positive	„	22 (*a*)
„	Positive	14 (*b*)
Variable	„	8 (*c*)

(*a*) In ten cases radiostoleum was started in convalescence.
(*b*) In four cases radiostoleum was given only one week before final test.
(*c*) In three cases radiostoleum was started in convalescence.

Percentage of these cases which were negative on discharge	65·6
Percentage of these cases which were positive on discharge	34·4

Results of Dick tests in 53 cases of scarlet fever to whom no radiostoleum was given:—

Dick-negative during convalescence	40
„ becoming positive	13

Of the whole consecutive series of 117 cases
70 per cent. of cases were negative on discharge from hospital.
30 per cent. of cases were positive on discharge from hospital.

It is obvious that the figures just given are not of value unless compared with a consecutive control series of cases; this is given in Table IV.

TABLE IV.—(*Control*). *Results of Weekly Dick Tests in 107 cases of Scarlet Fever, admitted to the Ilford Isolation Hospital, December, 1927–May, 1928.*

Weekly Dick tests in convalescence.	On discharge.	No. of cases.
Negative	Negative	36
Positive	,,	29
,,	Positive	11
Variable	,,	31

60·7 per cent. of cases were negative on discharge.
39·3 ,, ,, ,, positive ,,

Whereas 34·4 per cent. of the cases to whom vitamin A was given were Dick-positive on discharge from hospital, 39·3 per cent. of cases in the control series were positive. The difference of 5 per cent. cannot be held to show that any material effect is produced by the administration of vitamin A. We believe that the small difference was due to such factors as the infecting type of streptococcus and the individual power of developing immunity. We conclude that there was no difference in the production of antitoxin in the cases which received vitamin A and those to whom it was not administered.

We further investigated the case of a child who was still Dick-positive after an attack of scarlet fever, a relapse of scarlet fever and two successive immunisations against scarlet fever with toxin. She was treated for a month with radiostoleum ℥ vi. three times a day, and at the end of that period was Dick tested, and was then found to be still Dick-positive, the reaction being 39 × 27 mm., the control being negative.

Puerperal Cases.

Joe[12] found that of 22 cases of puerperal sepsis due to hæmolytic streptococci, 15 were Dick-negative and seven were Dick-positive. He argues from this that invasion by the hæmolytic streptococcus is apparently not restricted to the Dick-positive cases, and that an antitoxic immunity is no barrier to a general infection of the blood stream, since three cases of septicæmia and one of pyæmia were all Dick-negative. These results, however, may not altogether bear this implication as it is not stated at what date in the infection the Dick test was performed. A number of cases of scarlet fever are Dick-negative when the attack has started, but this is no evidence that they would not have been Dick-positive if they had been tested a little time before the actual date of the attack, and as the date of the Dick test before death is not given, the conclusion of Joe, that an antitoxic immunity is no barrier to a general infection of the blood stream, does not seem to be clearly substantiated, as the general infection of the blood stream possibly occurred before the Dick test became negative. The work of Burt-White suggests strongly that there is a correlation between Dick-sensitiveness and streptococcal infection.

We were able to follow up 92 cases of our series at the maternity home. Puerperal pyrexia occurred in six, three of whom were Dick-negative and three Dick-positive. The only case, however, which was at all probably of streptococcal origin and was a case of an acute pyosalpinx, was Dick-positive at the first test and remained Dick-positive in spite of treatment with radiostoleum.

We have also seen one case in which the administration of the vitamin appeared to have a definite effect. The following is an account of this case:—

A primipara, aged 23 years, delivered at home without instruments, had a normal labour; abdominal pain commenced on the second day, offensive lochia appeared on the third day, and rigors and vomiting began on the fifth day. She was admitted to the cubicle pavilion of the Ilford Isolation Hospital on the sixth day after labour with a temperature of 101·6° F., a pulse-rate of 84, and a respiration-rate of 18. She was flushed and anxious, and her abdomen was distended, tender, and quite resonant; some resistance was present below the umbilicus. The cervix and vagina were not lacerated, the uterus was not abnormally large, and there was no tenderness at the fornices. The lochia were slight and hæmorrhagic. She had an ulcer on a finger of the left hand, due to a whitlow which had been opened on the third day after labour; *Staphylococcus aureus* was found on culture from the cervix and the finger, but the blood culture was sterile. The urine contained no organisms or pus cells. She was given 60 c.cm. of antiscarlatinal serum and intra-uterine glycerin injections. Tenderness became most marked over the right side of the abdomen which was resistant to palpation. On the tenth day after labour the temperature was 102·8° F., the pulse-rate 108, and the respiration-rate 30; free fluid was diagnosed in the abdomen and laparotomy was performed by Dr. Everard Williams. Foul-smelling pus was found in the right paracolic gutter and Morrison's pouch; culture of this pus showed streptococci and *B. coli*. Two drainage-tubes were inserted. The patient ran an intermittent temperature until the fifteenth day after the operation when the temperature was 102·4° F. On the sixteenth day radiostoleum (liquid a drachm twice daily) was commenced. On the twentieth day the temperature was normal and she was doing well. On the thirtieth day the tube from the central incision was left out. The patient vomited on the next day, her temperature rose, and the abdominal condition suggested retained pus; the tube was replaced and the temperature became normal within 12 hours. The patient was discharged from hospital five weeks later with a small central sinus, and sent away for convalescence.

Obviously it cannot be claimed that the administration for four days of radiostoleum two weeks after the operation could be the cause of the recovery of this case.

We are inclined to think that in our own case, and possibly in some of those described by Mellanby, the improvement effected by the administration of the vitamin was a coincidence. The difficulty of deciding on the effect of any particular treatment in puerperal septicæmia is well shown in the recent work by Burt-White[13] on the treatment of puerperal septicæmia by concentrated scarlatinal antitoxin, where he reported 27 cases treated with eight deaths; after that he treated three cases with the same serum, all of which proved fatal.

We have come to the conclusion that there is no evidence at present that the administration of vitamin A in pregnancy has any effect in increasing the resistance of the body to streptococcal infection. Whether or not it has any effect in raising the general resistance is unknown and impossible to determine. The term "general resistance" is a loose one and we have no evidence that, if a person is not actually immune to a specific infection, any "general resistance" will prevent him from contracting that infection.

Results and Conclusions.

Vitamin A, in the form of radiostoleum, was administered to 52 women during pregnancy; in 16 women the Dick reaction turned from positive to negative; in three of these, however, it again reverted to positive. Sixty-four cases of scarlet fever were given radiostoleum, but the Dick reaction in convalescence was not considered to show any marked alteration from that in a control series of 107 cases. A child who had had scarlet fever and a relapse and two courses of inoculations with toxin against scarlet-fever and was still Dick-positive, remained Dick-positive after a course of radiostoleum for one month.

The results which we have obtained suggest that there is no prophylactic value in administering vitamin A in pregnancy to prevent the development of puerperal fever; also that it is doubtful whether the effects which have been described as following its administration for the purpose of treatment are not a coincidence. The conclusions based on experimental evidence of other workers have recorded that a deficiency of vitamin A in the diet predisposes to changes in the epithelial linings of mucous tracts in animals and, therefore, allows infection to occur.[14] This does not, in our opinion, justify a belief that the adequate supply of such vitamin would, in the presence

of a sufficient infective dose and the absence of immunity, prevent the occurrence of infection.

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THE DICK TEST IN RELATION TO INCIDENCE OF PUERPERAL INFECTIONS.

REPORT ON FIVE HUNDRED CASES AT ST. MARY'S HOSPITAL, MANCHESTER.

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THE success of the Dick test in distinguishing those who are immune or susceptible to scarlet fever, and the prevalence of infection with the *Streptococcus hæmolyticus* in the puerperium has led recently to several investigations on the relation of the Dick test to the incidence of puerperal sepsis (Burt-White, 1928,[1] amplified by Burt-White, Colebrook, Morgan, Jervis, and Harre, 1930[2]; Salmond and Turner, 1929.[3]

Burt-White showed that 30 per cent. of 27 Dick-positive cases became febrile in the puerperium compared with 2 per cent. of 73 Dick-negative cases. In Salmond and Turner's results 20 per cent. of 158 Dick-positive and 15 per cent. of 373 Dick-negative cases developed fever, and Burt-White, Colebrook, Morgan, Jervis, and Harre found 6·9 per cent. of 230 Dick-positive and 4·9 per cent. of 770 Dick-negative cases to become febrile.

The present investigation comprises a study of 500 women with the object of determining the relation between the results of the Dick test and the character of the puerperium. Of these, 248 were tested in the last week of pregnancy, 152 during labour, and 100 within 24 hours of delivery. In considering the results no distinction has been made between these groups; the percentage of Dick-positive and Dick-negative cases in each group was approximately the same; of the cases tested before or during labour, 28·5 per cent. were Dick-positive; of those tested within 24 hours of delivery, 26 per cent. were Dick-positive.

Method.

The toxin used for the Dick test was prepared from cultures of the Dochez strain of scarlatinal origin grown in Hartley broth for 44 hours. The reaction was adjusted to pH 7·6 before filtration. One batch of toxin has been used throughout the investigation. It was stored in a 1 in 10 dilution at $\pm 5^\circ$ C.; further dilutions were made every four days. This toxin produced good reactions in a dilution of 1 in 10,000. A dilution of 1 in 1000 produced slightly bigger reactions than the toxin issued by Messrs. Burroughs Wellcome and Co. for the Dick test; 0·2 c.cm. of a 1 in 1000 dilution was the amount of toxin used in the test. A control injection of Hartley broth 1 in 1000 was always made. All readings were taken between 20–24 hours after the injection and a reaction was considered positive if an area of erythema 1 cm. or more in diameter developed.

The standard of morbidity adopted was that formed by the B.M.A.: "all fatal cases and all cases in which the temperature reaches 100° F. on any two of the bi-daily readings from the end of the first day to the end of the eighth day after delivery." For the purpose of this investigation an attempt was made to subdivide the morbid cases into three grades according to severity. The first grade included all the cases which just came within the minimal requirements of the standard. The second grade included all cases with a temperature of 100° F. or over sustained for 48 hours with perhaps an occasional rise during the remainder of the puerperium; in these cases the pulse was increased in proportion to the rise of temperature, involution was retarded, and invariably the lochia was foul-smelling; headache was constantly present. These were cases which might be termed moderate sepsis. The third grade contained all cases of "septicæmia" and cases with persistent or intermittent fever lasting more than 48 hours; constitutional symptoms were severe and the lochia scanty.

Relation of Dick Test to Incidence and Degree of Morbidity.

The information under this heading is shown in Table I.

TABLE I.

—	Cases tested.	Cases morbid.	Percentage morbid.	Degrees of morbidity in cases in grades—		
				I.	II.	III.
Dick-positive.	140	14	10	8	2	4 (1 death)
Dick-negative.	360	46	12·8	21	20	5 (2 deaths)
Total ..	500	60	12	29	22	9

In this series, 28 per cent. (140 cases) were Dick-positive; 72 per cent. (360 cases) were Dick-negative. This corresponds to the figures obtained by others (Burt-White 27 per cent. positive; Salmond and Turner 29·6 per cent. positive; and Burt-White, Colebrook, Morgan, Jervis, and Harre 29·2 per cent. positive). The incidence of morbidity was 12 per cent. This is greater than in the series reported by Burt-White, Colebrook, Morgan, Jervis, and Harre, whose morbidity-rate was only 5·4 per cent., but it is approximately the same as the results shown by the other investigators. This difference may be accounted for by the adoption of the B.M.A. standard for this series, which would include cases omitted in the series quoted above.

In the Dick-positive group the incidence of morbidity was 10 per cent. as compared with 12·8 per cent. in the Dick-negative group. This difference (2·8 per cent.) is not significant as it is less than the standard error (6·1). Comparing the Dick-positive and Dick-negative groups as to the incidence of morbidity of each grade, it has been found that the observed differences are not significant when the standard error of sampling is taken into account. The observed difference in grade I. was 11·5 per cent. (standard error 15·1). In grade II. the difference was 29·1 per cent. (standard error 11·8). In grade III. the difference was 17·8 per cent. (standard error 12·7). There is thus no indication that immunity to toxin as judged by the Dick test decreased the liability to puerperal infection. The total number of severe infections was small, and the percentage incidence does not fall outside the limit of the standard error and must be attributed to chance sampling. That most of the severe infections in the Dick-negative group were associated with hæmolytic streptococci will be shown in discussing the bacteriological findings.

Incidence of Morbidity in Relation to Interference.

Interference and the unavoidable trauma which accompanies it must always be considered an important factor in the subsequent infection in the

puerperium. Young [4] (1928), in an address on maternal mortality from puerperal sepsis, discusses the factors which lead to infection during labour and the puerperium and gives evidence that trauma is the most important cause of the death-rate from sepsis.

In this series a comparison has been made between cases which were delivered spontaneously and those which had some form of major interference. By interference is meant any form of instrumentation, manual removal of the placenta, or induction other than medicinal. It is, of course, probable that factors other than the actual manipulation—e.g., prolonged labour, hæmorrhage, &c.—which are usually associated with the type of case requiring interference, were partly responsible for the morbidity recorded. The results are shown in Table II.

TABLE II.—*Relation of Interference to the Incidence of Morbidity.*

—	Interference.			No interference.		
	Cases.	Morbid.	Standard error.	Cases.	Morbid.	Standard error.
		%	%		%	%
Dick-positive ..	41	7 (17)	±5.86	99	7 (7·0)	±2·6
Dick-negative ..	118	28 (23·7)	±3·9	242	18 (7·4)	±1·7
Totals ..	159	35 (22·0)	±3·3	341	25 (7·3)	±1·4

The total morbidity is 22 per cent. with interference as compared with 7·3 per cent. without interference. This difference (14·7 per cent.) is about four times the standard error (3·57) and is, therefore, significant. In the non-interference group there is no significant difference in the incidence of morbid cases among those who were Dick-positive or Dick-negative, the observed difference (0·4 per cent.) being less than the standard error (3·07). In the interference group the observed difference in morbidity between the Dick-positive and Dick-negative cases is 6·7 per cent., the standard error being 7·05. Thus there is no evidence that the observed differences between Dick-positive and Dick-negative cases occurred otherwise than as chance variation. Under the circumstances in which the liability to infection was greatest (interference) it will be seen that immunity to toxin did not tend to reduce the incidence of morbidity.

Seven of nine cases which had the most severe grade of infection (Table I.) had been subjected to interference.

Bacteriological Examination.

Whenever possible severe cases of infection were examined bacteriologically. Material was taken from the uterus by means of a guarded swab introduced into the cervix uteri under aseptic precautions. Blood cultures were made and the urine examined in selected cases.

Method.—Anaerobic and aerobic cultures were always made. The hæmolytic streptococcus was identified after 24 hours incubation on horse-blood agar plates by a zone of hæmolysis of 1–2 mm. surrounding the colony. A summary of the bacteriological findings in eight cases (six of which were Dick-negative) is given in Table III. In all, the infection was concluded to be of genital origin except in case 196, where the severity of the illness was due to *B. coli* infection of the urinary tract, and case 349, which developed pulmonary tuberculosis. Six out of eight cases showed mixed cultures; from six Dick-negative cases the hæmolytic streptococcus was isolated from the uterus in four and present in the blood of the fifth, but in only one instance was it in pure culture. *B. welchii* was present in two mixed cultures.

Examination of the Lochia.—The lochia of 15 cases of moderate sepsis (grade II.) was examined, 14 of which were from Dick-negative cases. In four the hæmolytic streptococcus was the predominating organism; hæmolytic *Staphylococcus aureus* predominated in six; diphtheroids in two; *B. coli* in one; and non-hæmolytic *Staphylococcus albus* in two. Hæmolytic streptococci were not isolated from the Dick-positive case.

TABLE III.—*Summary of Bacteriological Findings.*

In each case, what appeared to be the predominating organisms is stated first.

Case.	Degree of morbidity	Uterine culture.	Blood culture.	Result
DICK-POSITIVE CASES.				
250	III.	No growth.*	Sterile.	R.
349	III.	Mixed actinomyces † pseudo-necrophorus; non-hm. staph.	,,	R‡
DICK-NEGATIVE CASES.				
134	II.	Mixed hm. strept., *B. coli.*	Sterile.	R.
151	III.	Non-hm. staph.; mixed hm. strept., *B. coli*, *B. welchii.*	Hm. strept.	D.
155	III.	Non-hm. staph.; mixed strep. viridans, *B. welchii.*	Sterile.	R§.
196	III.	Hm. staph.; mixed *B. coli*, aerobic spore-bearing organism.	Hm. strept. just before death.	D.
299	III.	Pure hm. strept.	Hm. strept.	R.
450	III.	Mixed hm. strept., non-hm. staph.	Sterile.	R.

* Direct film showed a few Gram-positive diplococci.
† This organism closely resembles the one described by Harris and Brown [5] (1927).
‡ Tuberculosis diagnosed three months later.
§ *B. coli* cystitis.
Hm. = hæmolytic; Staph. = *Staphylococcus aureus*; Strept. = streptococcus; R = recovery; D = death.

Discussion and Summary.

The results of this investigation show that immunity to streptococcal toxin measured by the Dick test did not decrease the liability to a morbid puerperium. In a series of 500 cases the standard error of sampling is necessarily high and before making a final conclusion a much larger series would have to be investigated, but if the results of other workers on this subject are considered with the present ones it is justifiable to state that the Dick test is not a reliable method of indicating a susceptibility or otherwise to puerperal infections.

There were in all only nine severe infections in this series. Of these, five which were Dick-negative were examined bacteriologically; four were infected with *Streptococcus hæmolyticus*, and two died. It is evident that immunity to toxin as judged by the Dick test did not prevent streptococcus infection. Moderate cases of sepsis may occur as frequently in those who are immune to streptococcal toxin (Dick-negative) as those who are susceptible (Dick-positive). This fact may depend on the infrequency of hæmolytic streptococcal infections in this type of case. Colebrook (1929) and Colebrook and Harre (1930) found 7 and 7·6 per cent. of their milder cases to be due to this organism. Armstrong and Burt-White (1929) found a higher incidence (23 per cent.).[6] Infection was significantly greater (four times the standard error) in cases which had been subjected to interference. In the majority of cases of sepsis there was a mixed infection locally, but in those which gave a positive blood culture the hæmolytic streptococcus was isolated in each instance. Local infections may be aggravated by the presence of anaerobes; in two out of eight cases *B. welchii* was isolated from uterine cultures.

The failure of antitoxic immunity as indicated by the skin test to prevent streptococcal infections may result from several possible factors. Trauma and mixed infections may aid the invasion of streptococci. It is possible that some strains have a high invasive power which antitoxic immunity does not hold in check. The question of the identity of toxins from strains of different sources may still

be open to doubt, and even if they are identical the toxin which produces a skin reaction may not necessarily be the only toxin responsible for pathogenic effects.

I wish to express my thanks to the medical board of St. Mary's Hospital for permission to utilise their cases and to the resident medical and nursing staff for their help in this work. I am much indebted to Prof. H. B. Maitland for his useful criticism and advice and to Dr. E. H. Scholefield for his valuable help in interpreting the tables.

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Clinical and Laboratory Notes.

A NOTE ON MARGINAL OSTEOMYELITIS OF THE JAW.

BY J. DUNLOP KIDD, *M.C.*, M.B. GLASG., D.M.R.E. CAMB.

OSTEOMYELITIS of the upper or lower jaw has, of course, been recognised for a long time, but it has usually been of a diffuse type involving large areas of bone. There is another type, however, which is not so well known, nor have I been able to find any exact description of it in the most recent books dealing with dental pathology. It is not a condition that spreads far from the alveolar margin, and I should like to call it "marginal osteomyelitis." I do not think an accurate diagnosis is possible without an X ray examination. I have only seen about half a dozen cases in a scrutiny of the dental radiograms of some 2000 patients.

Marginal osteomyelitis is a definite sequela of pyorrhœa, and the infection starts from the sockets of septic teeth. Usually, after the extraction of even the most septic teeth, the socket drains freely and regeneration takes place at a fairly early date, the socket being filled in with new alveolar bone. This process can be checked by a series of radiograms. If there is not free drainage, or if some septic focus is left behind and shut off, then marginal osteomyelitis may follow; but this may not supervene till weeks or months after the extractions have taken place.

Intra-oral dental radiograms[1] of the affected area show in the early stage that the sockets of the extracted teeth are patent, that there is no sign of regeneration, and that the inter-radicular processes remain distinct. Later films show more definite bone changes, all, or only some of which, may be seen on the same film. The first is the increased translucency of the alveolar bone; next, the margin becomes feathery, worm-eaten and irregular, small detached sequestra being seen. Then small areas of absorption, rather like small cysts, appear either close to the margin or at varying distances from it. Here and there a little bone sclerosis may be evident, and in one case definite new periosteal bone was seen, practically the same as is seen in a periosteal sarcoma.

The area infected does not tend to spread much laterally, but is confined to the areas from which pyorrhœally infected teeth have been extracted. Bacteriological investigation yields a streptococcal growth, usually in pure culture. Judging from the cases I have been able to trace, the systemic effects of marginal osteomyelitis are the same as from pyorrhœa or peri-apical tooth abscesses, but more virulent, as might be expected. When the medical attendant of a patient suspects dental infection as the cause of some morbid condition, he naturally asks that an X ray examination may be made of the teeth. This may show no dental sepsis; but how often are the edentulous areas also examined? Probably very seldom, unless the dentist suspects a broken stump, the supposition being that if there are no teeth there can be no dental sepsis. In my opinion, a complete radiographic examination of the mouth should include the edentulous areas as well as the standing teeth.

Notes on Four Cases.

(1) Male, aged 53. Severe pyorrhœa—all teeth extracted eight years ago—septicæmia with infection of right knee-joint, which is now stiff. X ray of upper and lower alveolar margins showed marked osteomyelitis in canine and central areas. Pure streptococcus growth from these areas—extensive local curetting; right antrum also infected; vaccine treatment gave marked improvement.

(2) Male, aged 60. Anæmic and toxic—"an ill man"; upper left premolar to right canine areas were edentulous and showed marginal osteomyelitis on X ray examination; pure streptococcus obtained; vaccine and local treatment given with great improvement in condition.

(3) Male, aged 60. Pale, anæmic, and toxic—gastric symptoms; upper left and lower right molar and premolar areas. X rays showed marginal osteomyelitis and periosteal new bone; pure streptococcus obtained; vaccine treatment given; great improvement.

(4) Female, aged 42. Severe pyorrhœa—teeth extracted some years ago; anæmia and general malaise, practically an invalid; upper and lower right premolar and canine areas showed marginal osteomyelitis; recurrent exacerbation of general symptoms every four or five months; patient in bed; prolonged vaccine treatment with recovery.

[1] The radiograms illustrating this note have been omitted owing to the loss of detail on reproduction.

TREATMENT OF GENERAL PARALYSIS OF THE INSANE BY INJECTION OF SULPHUR.

BY NOEL G. HARRIS, M.B. LOND.,
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Schroeder,[1] in a paper published in November, 1929, records the therapeutic effect of injections of sulfosin. Much of what he claims I should like to confirm in this brief report, which I intend as a prelude to a fuller account. There are two important points which make the method worthy of full investigation. (1) It is generally agreed that the earlier malarial or other forms of "pyrexial" therapy are begun in cases of general paralysis of the insane the greater is the chance of recovery. Up to the present time, however, hardly any cases are treated outside hospitals or nursing homes, so far as I know, because of the difficulties involved. Hence many cases have been left to degenerate until they were certifiable, when the chance of successful treatment was much less. (2) It is also common experience that some cases entirely fail to react to malarial inoculation, while cases that have been successfully inoculated and yet do not improve cannot, as a rule, be successfully reinoculated within six to nine months.

If, therefore, it can be shown that the treatment of general paralysis by injections of sulphur in olive oil is as effective as malarial therapy, it places a valuable new method of treatment in the hands of the practitioner situated even in the most remote district, for the technique is simple and the substance is easy to handle. Moreover, it forms a second mode of attack should malarial therapy fail.

At present there are two preparations on the market—collosol sulphur and sulfosin Leo.[2] The latter is the preparation used by Schroeder in his work,

[1] Schroeder, Knud: THE LANCET, 1929, ii., 1081.

[2] Collosol sulphur is obtainable from British Colloids, Ltd., 22, Chenies-street, London W.C.1, and sulfosin Leo from C. L. Bencard, Ltd., 143A, Wardour-street, W.1.

and is put up in boxes containing phials of 1 c.cm., 5 c.cm., and 10 c.cm., also in boxes containing ten phials of 10 c.cm. Collosol sulphur is put up in phials of 1 c.cm. and 5 c.cm., or in sterile bottles containing 1 oz. I have been using both these preparations in order to contrast the efficacy.

The technique I have followed is precisely that of Schroeder. 1 c.cm. of the preparation is injected intramuscularly into the outer side of the thigh. Unlike Schroeder, we find it better to make the injection at about 7 P.M. in order to simplify the nursing, for then the most important half-hourly temperatures are taken in the morning rather than during the night. After the injections the temperature is taken every two hours until pyrexia commences, when the temperature is charted every half hour until it is normal again, then the two-hourly charting is resumed. The temperature in my cases has usually fallen to normal in about 10 to 14 hours, although there is frequently a secondary smaller rise which, however, soon subsides. After the temperature has been down to normal for some hours the next injection can be given and the dose increased by 1 c.cm. unless the previous temperature has been much over 104° F. This is continued until ten injections have been given.

I do not altogether agree with Schroeder that the degree of pyrexia can be regulated by the dosage. The data so far at my disposal tend to suggest that a high degree of fever can be maintained without increasing the dose in some patients, while in others an increase of several c.cm. may not produce a relatively larger increase in fever. I think that each individual has probably to be studied in this connexion.

The injections have caused more discomfort in my cases than Schroeder suggests, and one patient had marked inflammation and œdema down the leg, but the pain seems to disappear rapidly, without ill-effects. It is too early to compare the clinical results of the two preparations used, but they both produce excellent pyrexia.

The material on which I base this report is as follows: The treatment was begun on Dec. 11th, 1929, and a total of 14 cases have been treated with a series of ten injections, while one other is under treatment. In all but one temperatures ranging from 101° to 105° F. were produced by each injection. The case which showed only a slight pyrexia after each injection had been twice previously inoculated with malaria, once by mosquitoes and once by blood, but on each occasion without any successful reaction. He was in extremis when the injections of sulphur were started and died subsequently. At autopsy it is interesting to note that besides the changes common to general paralysis a stone of over 4 oz. was found in the remains of the left kidney, which had been reduced to a fibrous sac, while the right kidney was also partially destroyed by another stone. Another of the patients had malarial treatment with good pyrexia in November, 1928, but had shown no mental improvement. This patient had an excellent pyrexia following each injection of sulphur. A third patient whose first ten injections have been completed was a case of about three years' standing. He had been inoculated several times with malaria, always unsuccessfully. He was in a very advanced stage when the sulphur injections were commenced, and, owing to his lack of coöperation, it was impossible to record the temperature. He has, nevertheless, made a most remarkable improvement. He is now up and about, having put on much weight, and he is much better mentally. This case suggests that with reasonable care it is not essential to work by the temperature alone. Of the other cases, all have given or are giving excellent reactions, and five show considerable improvement already. It is, of course, too early to say much about clinical improvement.

Conclusion.

There seems no doubt that injections of sulphur in olive oil produce a high degree of fever, even in patients who have had malarial treatment previously or who have failed to react to malarial inoculation. The injections are simple and safe to give, and are well worthy of a trial by any practitioner. The earlier the diagnosis is made and the treatment commenced, the better is the end-result likely to be.

My thanks are due to my medical superintendent, Dr. R. Worth, for his permission to publish these cases.

Medical Societies.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES.

At a meeting of this Society on May 8th, with Dr. F. J. H. Coutts, the President, in the chair, a discussion on

STRICTURES OF THE URETHRA

was opened by Mr. Jocelyn Swan. Nowadays, he said, the urological surgeon did not see the severe type of stricture which was formerly met with fairly commonly in hospital work. He did not doubt that this was largely because of better and more thorough treatment of venereal disease. Students now saw stricture cases at an earlier stage, and a patient was seldom allowed to go on to a serious condition before seeking expert advice. Strictures could be divided into congenital, traumatic, and inflammatory. The first two could be quickly dismissed. Congenital strictures were found in early childhood about the meatus or the posterior part of the fossa navicularis, and were due to errors of development. Valvular strictures, seen occasionally in the posterior urethra, were responsible for the very dilated ureters and hydronephrosis seen in infant life. Congenital strictures were often formed of mucous membrane with the concavity backwards, so that it was easy to pass a small catheter or bougie and conclude that no narrowing was present. But as soon as pressure of oncoming urine was exerted this membrane bulged forward and blocked the urethra. It was not so much a stricture as a congenital malformation of the urethra. Traumatic stricture was a more serious problem because of the length and often the tortuous form of the urethra after an injury. The urethral wall might be torn, and there might be discontinuity between the two ends In the process of healing much fibrous tissue formed.

Inflammatory Strictures.

It was safe to say that fully 90 per cent. of inflammatory strictures followed gonorrhœal infection. Staphylococcal urethritis seldom produced stricture; its sequel was rather a superficial inflammation. Why should gonorrhœa occasionally result in stricture? It would be generally agreed that the cause was not so much the actual disease as the treatment which was applied to the gonorrhœal infection. And it was not usually the severe case which was followed by stricture, but the slight case, which often had been neglected, was tedious in treatment, and had persisted for a long time. He was sure he had seen patients whose urethral stricture was a result of long-continued over-treatment. Fortunately, however, this severe treatment by applying strong solutions to so-called mucous patches had largely gone by the board. In his early days he had seen many cases in which the urethra had been directly painted with silver nitrate, grs. 30 to 60 to the ounce, through an endoscopic tube. This was followed by septic infiltration of the urethral wall and definite stricture.

The reason why stricture was mostly in a particular position had given rise to much speculation; three-quarters of them were in the bulbous urethra. His view was that this was the site because it was the first part of the curve upon which the urine impinged in ordinary micturition. Stricture of the urethra also followed syphilis; he had seen many cases of meatal stricture following meatal chancre, and from the same

cause stricture in the terminal inch of the urethra; and likewise gummatous stricture. After gonorrhœal infection there was a deep infiltration extending through the mucous coat of the canal, followed by the formation of fibrous tissue. Strictures in the urethra were often multiple; indeed, some authorities said that 40 per cent. of them were multiple, but Mr. Swan did not put the proportion so high. When, therefore, the endoscope revealed a fairly wide stricture in the urethra it was necessary to make sure there was not also a deeper placed and narrower one. The tighter the stricture the more proximal it was. The lumen of the stricture was not necessarily in the centre of the infiltration; often it was placed eccentrically, and on passing a fine bougie the stricture was found to be a long one. The term "bridle stricture" he regarded as a misnomer; the band which was supposed to cross from one side of the urethra to the other was almost always formed by the passage of instruments, in other words, by a false passage. There had been a burrowing outside the urethral wall.

Effects of Stricture.

When the urethral canal was narrowed the thing that made most difference to the patient was dilatation of the proximal urethra, for with such dilatation came a liability to infection. The prostate, also, might be infected as a result, and in a secondary way the epididymis and bladder, and later the ureters and kidney. Infection was the bugbear of every surgeon who had to deal with strictures. As regards symptoms, when a patient complained of a persistent slight discharge the surgeon should in every case make a proper examination of the urethra, preferably with the endoscope. No significance attached to the so-called twisted stream described in text-books; a stream of fluid propelled through a vertical orifice was almost sure to emerge in a twisted form. What was significant was a statement that the stream had not the force it once had. Another complaint of a patient with stricture was his inability to finish off the act properly and cleanly; when he supposed it to be finished, a few drops subsequently dribbled into his clothing. That was an important sign, and the dribbling gave the surgeon an idea of how tight the stricture had become, and the degree of dilatation behind the urethra. Usually the man with stricture had not any appreciable increase in frequency; and if a patient with stricture complained of increased frequency, and especially of having to rise in the night to pass water, this was almost certainly due to infection having spread behind that stricture—in other words, the patient probably had cystitis. On the stricture becoming tighter there might be a history of retention, and this might occur even with wide calibre strictures. The patient perhaps caught a chill when motoring, or over-indulged in alcohol, and got an attack of retention in consequence. Occasionally there was the incontinence associated with an over-distended bladder. Mr. Swan looked upon the patient with an over-distended bladder, whether due to stricture or to an enlarged prostate, as in a very precarious position. The best and safest means of treating an over-distended bladder was to decompress the bladder very very slowly; one should never attempt to draw off all the urine at once.

Examination of Cases.

A general idea seemed to prevail that the first thing to do for a patient with stricture was to pass a bougie or sound; actually this was about the last thing to be done. In any case suspected or known to have stricture it was best to wash out the anterior urethra and inspect it with the endoscope, preferably with one capable of distension with air. This method should be used from the start. One could not only see the stricture, but could glean a good idea as to the size of bougie it would be possible to pass in the initial stage of dilatation. It should never be forgotten that strictures might be multiple, and that the one first seen might not be the only one or even the narrowest. With good distention and efficient lighting a stricture further down would be visible if it existed. If the surgeon decided to start examining with a bougie or a sound, he should use a flexible one at this stage, commencing with a 22 or 24 French (or No. 12 English). Passage should be carried out with the utmost gentleness, and with full aseptic precautions, and any obstruction met with must be noted. If there was obstruction a bougie should be found of a size which would just fit. When this had been passed enough had been done until the next sitting, five days later. Next time the surgeon began with this size and worked upwards. Mr. Swan never used a steel bougie smaller than a No. 15 French for much harm might be done by using smaller sizes in steel. He used sizes up to No. 19 French, and followed them up with steel sounds. The bougies should have a gradual taper, and English makers did not equal the French in this regard.

The urologist confronted with a patient complaining of difficulty of micturition or slowing of the stream should never omit to test the knee-jerks. Many patients were sent up as cases of stricture or prostatic trouble who were found to have early tabes or some other nervous trouble.

Complications.

The complications of stricture could be summed up in the words "retention and the outcome of sepsis," the latter including peri-urethral abscess, prostatitis, epididymitis, cystitis, pyelonephritis, and extravasation; this last was nothing more or less than a more acute form of peri-urethral inflammation, and could no longer be considered a true extravasation of urine, since it was due to anaerobic organisms getting loose and spreading into the cellular tissue. Fistula must also be included. It was not unusual to find that the dilated portion of the urethra behind the stricture contained a stone. In most cases, he thought, the stones had descended into the urethra and had enlarged there.

Treatment.

The treatment adopted in a particular case would depend not only on the size of the stricture, but on the accompanying conditions—i.e., whether the patient had a peri-urethral abscess or fistula or some other complication. Taking the stricture itself, the first aim must be to dilate it. Nowadays very few strictures were utterly impassable, but in dilating them it was very important to go slowly. It was possible to go up to a much larger size than was formerly taught, and he did not hesitate to go up to a No. 11 or No. 12 English, at least. After that one could pass on to the use of sounds. Continuous dilatation, by leaving the instrument in, was apt to set up urethritis, and this might lead to septic complications. If a patient had a very tight stricture—even if this caused retention—and if a fine or filiform bougie could be got in it should be left in and the patient should be allowed to dribble alongside it drop by drop until the bladder was in this way slowly decompressed.

As to the curability of a stricture, he would say that when it had reached a stage requiring dilatation it could not be more than relieved in this way. In a general way the axiom "once a stricture always a stricture" was true, but there were exceptions. A stricture could be dilated to No. 16 English, then the patient could be required to attend once a week or fortnight, and at the end of three months he should be re-examined with the endoscope; perhaps by then there would be little remaining of the stricture, and a longer time could elapse between sittings. This treatment should be followed by the regular passage of a sound. The neglected stricture would contract again.

Dilatation would not always succeed; there were cases in which the stricture was very hard and fibrous, so that it was very difficult to even dilate one side at a time. If after four or five days no impression could be made on the stricture, the speaker would cease these efforts and advise operation. Strictures which were resilient could be dilated, but the effect did not last; these also he preferred to operate upon. If attempts at dilatation of a stricture were accompanied by

bleeding, no further effort should be made for the day, and if there was a repetition of bleeding at a future sitting he would advise operation. Where a stricture was accompanied by epididymitis or a perineal abscess it should not be dilated, but should be operated upon. What should the operation be? In the absence of fistula or abscess he did not doubt that the best results ensued from internal urethrotomy. But this operation required experience; it was not as simple as the reader of text-books might believe. He did the Maisonneuve operation, cutting from the distal to the proximal side. A very fine guide was passed through the stricture; screwing it on to a steel guide, a filiform bougie was passed into the bladder, and the knife was passed down the steel director so as to divide the stricture. American surgeons deprecated tying in a catheter after doing internal urethrotomy, but the speaker did not know why they should. He left a catheter in for 48 hours, washing out the bladder morning and evening. At the end of 48 hours he filled the bladder, took the catheter out, and told the patient to pass urine. The old Syme operation, done on a director staff, he considered unnecessary, because if so large an instrument as a Syme director could be passed, the stricture was dilatable, and there was no need for the patient to be in bed three weeks. The only form of external urethrotomy was the Wheelhouse, in which the urethra was opened in front of the stricture, then the lumen was searched for with a guide and the stricture was divided. Another form was excision or resection of the stricture and joining up the two ends of the urethra. In resecting strictures he preferred to unite the upper wall of the urethra, leaving the inferior part open, and have a large catheter passed right through. If these procedures resulted in the patient having a rigor, he should be given hot drinks and hot bottles should be put round him.

A complication for which the surgeon should be prepared was high fever followed by anuria. This was sometimes so urgent that it called for decapsulation of the kidney. In one such case which ended fatally there was no lesion of the kidney to point to the reason for the anuria. In spite of all that could be done, anuria was almost always fatal. A peri-urethral abscess must be opened. If it were in the penile urethra it was better to open it through an endoscope tube than from the outside, which might cause a fistula. If the abscess developed in the perineum, it should be opened by a free incision, the stricture being treated at the same time.

With a stricture of fairly wide calibre retention might be abolished by putting the patient in a bath and giving morphia, afterwards wrapping him in blankets. A catheter should not be passed if this could be avoided. When a patient was declared to have renal inefficiency it meant that his kidneys were feeling the stress of back pressure or infection. Such a patient was losing his tone, and was beginning to lose weight; his appetite was not good, he had a dry tongue, thirst, and perhaps backache. His renal functions must be properly tested before manipulation of the urethra, and the tests should include estimation of the blood-urea. If the blood-urea was above 50 the kidneys were beginning to fail, and this meant an increased operation risk.

Mr. Swan concluded with a warning not to follow the tendency of the present day to rely on laboratory findings to the comparative neglect of purely clinical methods. Accessory tests should remain accessory tests.

Discussion.

Major F. C. DOBLE agreed that a large proportion of strictures were due to vigorous treatment of gonorrhœa. He thought the bulbous urethra was most often affected because the strong solutions used remained there.

Dr. T. J. WRIGHT (Norwich) asked about the prevention of embolism after passing the urethroscope, and spoke of the efficiency of Coleman's dilator.

Dr. H. C. SEMON spoke of a case in which stricture was complicated by condyloma acuminata, and asked whether caustic applications to the fossa navicularis were contra-indicated.

Mr. SWAN said that he had a great liking for Coleman's dilator in appropriate cases, and that for the condylomata mentioned by Dr. Semon he would use diathermy, as it left a soft and supple scar. Or radium might be used in such a case. The only filiform bougies he used were soft; he did not even go to the length of using whalebone ones.

INSTITUTE OF RADIOLOGY.

DOSAGE OF RADIUM THERAPY: DR. MURDOCH'S REVIEW.

AT the Institute of Radiology on May 8th the chair was taken by Dr. N. S. FINZI, and a lecture was given by Dr. JOHN MURDOCH of Brussels. When the permanent results of large radium institutes were compared, he said, a striking similarity appeared, despite the fact that very different methods were applied. It must be admitted that present methods were mainly empirical, lacking the indispensable basis of all scientific therapeutics—viz., an unquestionable unit of dosage. We knew everything about the dose emitted but nothing whatever about the dose absorbed by the tissues, and until quite recently it had been impossible to give correct instructions, based on physical data, for making surface masks. The method of ionisation, which had given excellent results in measuring X rays, had not been used to the same extent for measuring gamma rays, on account of technical difficulties due to the size of the ionisation chambers. Various investigators had tried to overcome the difficulty by using biological or photometrical methods. The biological tests tried had included the skin-erythema dose, the growth of germinating peas, the reaction of the epithelium of the uterus, the temporary castration dose, the intensity of necrosis in a rabbit's muscles, the decoloration of butter, and the percentage mortality in the eggs of ascaris. These methods could never be as accurate as physical tests. The size of the ionisation chamber prevented the measurement of radiation in the immediate vicinity of the source, just where the effects were most considerable. The smallest ionisation chambers were those of Ferroud (1·8 c.cm.), Sluys and Kessler (1·5 c.cm.), Mallet (1 c.cm.), Huth (0·5 c.cm.), and Glasser, Portmann, and Seitz (25 c.mm.), but in none of these could measurements be made at a distance of less than 1 cm. from the axis of the radio-active preparation. Prof. Stahel, of Brussels, had succeeded in 1928 in constructing a chamber of which the volume was only 2 c.mm., using a liquid instead of a gas medium to avoid diminution of sensitivity. Hexane, an ether of petroleum, had been selected. In this chamber the "wall effect" was only felt in a field a few tenths of a millimetre thick and the secondary electron rays covered a very short distance; the absorption of photo-electrons and Compton electrons was almost complete. The phenomenon described by Jaffé as "column ionisation," however, made it impossible to comply entirely with the conditions laid down in the definition of the international "r."

In 1918 and 1919 Regaud and Ferroud had adopted the unit of "destroyed millicuries," and the majority of Anglo-Saxon, German, and Scandinavian radiologists used the milligramme hour. Both these systems defined the quantity of radium used and the time of treatment, but ignored filtration and distance. The "D" unit of Mallet and Proust bore no relation to other physical units. Deauvillier had proposed the erg as a curie-therapeutical unit in 1923, and in 1928 Stahel had adopted this and measured the quantities of energy absorbed by units of volume of irradiated tissue, the results being expressed in calories-cubic centimetres or ergs-cubic centimetres. Stahel's method of making these measurements was ingenious and delicate, involving the estimation of ten-thousandths of a degree centrigrade per minute, and the elimination of heat due to alpha and beta rays.

Clinical Application of the Erg-Cubic centimetre Unit.

The combination of ionometric and energy measurements had enabled the physicist to draw up a series of isodoses corresponding to the various needles and tubes in use. The curves had been established for a standard tube containing one milligramme of radium element, and the figures shown in the various curves were those of the quantities of ergs absorbed per hour by a cubic centimetre of tissue at the spot under consideration. Curves had been plotted in planes parallel with the main axis of the preparation at graduated distances from 0·5 to 5 cm., and also at perpendicular planes. By means of these planes of isodoses an irradiation scheme could be prepared to ensure homogeneity of dosage throughout a tumour of any form and surface, with a determined surface- and depth-measurement of absorbed energy.

Dr. Murdoch then showed slides illustrating the preparation of schemes for tumours with flat and curved surfaces respectively, with and without a support of Columbia wax. The arrangement was principally based on tubes containing 13·33 mg., but where the dose was too small it could be increased by adding tubes of 6·66 mg. or needles of 1·33 mg., dividing the values by half or ten respectively and adding 6 per cent. for needles to make up the difference in filtration. When a curved surface was to be irradiated the correction resulting from the convergence of the γ rays had to be established. Once the arrangement and power of each source of radium had been chosen in such a way as to ensure that each spot of the radiated surface received almost the same quantity of energy in erg-cubic centimetre milligramme-hour units, the time of application was determined automatically from a table.

Appliances and Cases.

A row of five standard 1 mg. tubes produced very unequal radiation at a depth of 0·5 cm., the difference between the two extremes being 25 per cent. Inequalities disappeared, however, at a distance of 1 cm., and still more at 2 cm. At a depth of 1 cm. a single tube gave a maximum of 1400 ergs-cubic centimetre milligramme hours, but five tubes increased the intensity to 2200 ergs/c.cm. mg. hr. Five parallel tubes also gave a very heterogeneous absorption at 0·5 cm. but an almost homogeneous radiation at 1 cm., the maximum intensity being 1·43 times that of a single tube. Twenty-five tubes arranged in five rows at equal intervals of 20 mm. gave a central field of about 6 cm. diameter at a depth of 1 cm. with a practically homogeneous radiation of 4520 ergs/c.cm. mg. hrs. Four tubes arranged in a cross in a circle of radius 2 cm. meant a deficient irradiation of about 15 per cent. in the centre. If they were brought 5 mm. nearer the centre the energy received there would increase from 1600 to 2600 ergs/c.cm. mg. hrs., and if they were moved 5 mm. away it would decrease to 1000 ergs/c.cm. mg. hrs.

Dr. Murdoch then showed slides of a number of typical cases treated by these methods, illustrating their application to neoplasms of the face, palate, nose, and neck. One of the great advantages, he said, was the possibility of making masks to cover large surfaces with a relatively small quantity of radium. It was quite easy to limit exactly the border-line of the irradiation and to avoid all overlapping and all underdosing of intermediate areas.

The skin was very radio-sensitive, and a slight erythema was caused by a dose of 450,000 ergs/c.cm., as by a dose of 600 r. given in one séance. A dose of 550,000 ergs/c.cm. caused frank erythema and brown pigmentation and 600,000 ergs/c.cm. caused a deep red erythema followed by desquamation. Radio-epidermitis with blisters and strong pigmentation was produced by 700,000–900,000 ergs/c.cm., and higher doses might cause serious burns. A dose of 400,000 ergs/c.cm. would cause conjunctivitis lasting less than six weeks. Mucous surfaces could absorb much larger doses; the mouth could stand more than 900,000 ergs/c.cm. with a reaction lasting four or five weeks and consisting of a white diphtheroid membrane. Similar doses could be applied to the vagina. The tongue could absorb large amounts without loss of substance or marked fibrosis; in one case over 5,000,000 ergs/c.cm. had been absorbed in the tumour and over 3,000,000 units at a centimetre beyond its borders. The tumour depths thus received quantities of energy amounting to ten times the erythema dose; the cicatrisation had been normal. Similarly in the vagina the absorption of eight times the erythema dose did not cause any exaggerated reaction and cicatrisation was complete after six weeks. The distribution of isodoses round the uterus showed how rapidly the intensity fell off. At a distance of 4·5 cm. from the cervix the intensity at the level of the parametria was only equal to a single erythema dose—i.e., 600,000 ergs/c.cm.

In conclusion, Dr. Murdoch said that the adoption of a unit indicating the amount of energy absorbed per unit of volume of tissue made dosimetrics independent of technical conditions. The dose received and not the dose emitted was measured and the only essential elements were the amount of energy absorbed at the surface, the percentage of the depth dose, and the time of application. Different treatments and types of treatment could thus be compared. Moreover, the handling of radium was reduced to a minimum. The plan was worked out on paper and scratched on the wax and the tubes were put in place in a few minutes.

At first sight it seemed impossible to administer these amounts of energy by any method that necessitated the irradiation of the skin, such as the radium bomb.

ROYAL SOCIETY OF MEDICINE.

SECTION OF THERAPEUTICS AND PHARMACOLOGY.

AT a meeting of this Section, held on May 14th, the chair was taken by Dr. PHILIP HAMILL, the President, and a discussion on the

TREATMENT OF DISSEMINATED SCLEROSIS

was opened by Sir JAMES PURVES-STEWART. He said that the irregularity of the course of the disease and the frequency of remissions and relapses enhanced the difficulties of discussing the subject. Alleged "cures"—very few of which were on record—were either cases of wrong diagnosis or of prolonged remission. Treatment might be by drugs—of which arsenic was the most useful, especially the silver salvarsan type—or by specific causal methods. Exogenous vaccines had proved very useful in many hands and might act by producing a pyrexial reaction or by protein shock. The causal method had become attainable since the discovery of a specific organism.[1] Miss Chevassut had cultured an organism from about 93 per cent. of 200 cases, with a large control series. Cases which had given negative results had been found to be under arsenical medication. The organism, *Spherula insularis*, was not unlike that of bovine pleuro-pneumonia and had two forms—a sphere and a granule. A large sphere was about the size of a staphylococcus and a large granule about one-tenth of that size. Culture had to be made in Hartley's broth to which human serum had been added; the organism was very sensitive, and its culture demanded considerable care and experience. Injection of the culture into monkeys had at first proved disheartening, but eventually two out of six had developed degenerations. One showed them in the direct cerebellar tract and at the junction of the postero-internal and postero-external tracts, with spots of degeneration also in the lateral tracts. In the second monkey the degeneration was in the antero-median region. An inhibitory substance sometimes appeared in the blood of rabbits and of patients after successful vaccine treatment, but an

[1] THE LANCET, 1930, i., 552.

anti-serum had not yet been produced. In consequence of this discovery vaccines had been made from actively growing cultures, either in serum or in normal saline, and both gave satisfactory results. The virus must be killed by phenol, not by heat. Over 200 patients had been treated but only 73 had yet been under observation long enough for study—i.e., for at least two years. In these 73, encouraging serological and clinical results had been obtained. The globulin reaction diminished and disappeared and the gold curve and cultures became completely negative, while the blood became inhibitory to the growth of the organism.

Signs and symptoms came to a standstill and in some cases improved, although, of course, having a residue corresponding with the degenerations. Among eleven early cases negative cultures had been obtained in five, and nine had shown improvement in their gold and globulin reactions. Of 29 moderate cases, six had become negative while 23 had improved. In 33 advanced cases there had been no negative cultures, though in 20 the gold and globulin reactions had diminished. Two or three series of twelve doses of vaccines of increasing strength were usually needed before any objective improvement was obtained, although clinical improvement began early. That this improvement was not merely remission was shown by the fact that in remissions the serological findings were still positive and the organism could be cultured from the cerebro-spinal fluid.

Discussion.

Dr. DOUGLAS MCALPINE referred to work by Adams, of Glasgow, and others on the improvement of the cerebro-spinal findings after arsenical treatment. This had been in favour of the effect of arsenic. He asked if there could be a control series of serological tests in cases treated by arsenic, and another to show whether arsenical treatment caused any inhibitory effect of the blood-serum on the spherula.

Dr. WILFRED HARRIS congratulated the authors on what he hoped would be a far-reaching advance in therapeutics, whether or not the spherula proved to be the causative organism of disseminated sclerosis.

Dr. KINGSTON BARTON said he had known cases which had had very little treatment go on for a very long time. Disseminated sclerosis was mixed up with psychosis, and light might be thrown on it from that side. In private practice one of the greatest difficulties was the liability to bacilluria, and hexamine might hold the balance between health and illness. Insomnia might be controlled by giving very minute doses of hypnotics—e.g., half a grain of veronal, and in this way drug addiction could be avoided.

Dr. HILDRED CARLILL asked what should be done in clinical cases of disseminated sclerosis in which the organism could not be found. He had had remarkable success with the vaccine.

Miss KATHLEEN CHEVASSUT said that it was quite impossible to get a culture if the fluid had been contaminated, and completely sterile lumbar punctures were difficult to secure. Only a small percentage had proved negative, and it was worth while to do repeated lumbar puncture. There seemed to be some unknown factor that influenced cultures. A trace of arsenic in the cerebro-spinal fluid inhibited culture, but this did not necessarily mean that it destroyed the organism in the body; it might have a mechanical effect. The colloidal gold curve had been fully investigated in Sir James Purves-Stewart's cases, both disseminated sclerosis and controls, and its relation with arsenical treatment had been studied. The Glasgow cases had had intensive arsenic treatment, and possibly the effects of the arsenic excreted into the cerebro-spinal fluid had chemically interfered with the very delicate gold reaction. The infective agent was probably not the sphere but the granule, and a very wide field of research was still open in this connexion.

The PRESIDENT asked whether the vaccine used was always autogenous and whether it degraded on keeping and must be freshly prepared.

Dr. Z. KUBIE asked whether there were any indications of a living process, such as consumption of oxygen and evolution of carbon-dioxide, in these cultures, and also whether the interval between the induction of treatment and the appearance of remission showed any constancy. Recent work in New York hinted that there was a lipolytic agent in the blood-serum of patients of disseminated sclerosis; some suggestive results had been secured with quinine.

Miss CHEVASSUT said the vaccine was merely a culture killed with phenol. The number of granules was counted under the microscope and the number per c.cm. calculated. The difficulty lay in the recognition of the positive culture and not in the preparation of the vaccine. It must be given intravenously to be effective and must be autogenous. It did not seem to keep more than three months. It was given at weekly intervals.

Dr. BROUGHTON ALCOCK asked at what stage a patient was declared unable to respond, and if any injury followed the use of the vaccine in the late stage. Was there any simple laboratory method of diagnosis?

Sir JAMES PURVES-STEWART, in reply, said that the diagnosis was both clinical and serological. In some very slight cases the serological observations were very valuable, but the disease should never be excluded on a laboratory specimen. Sometimes a patient would be a little sleepy or have a few minutes' collapse after a large dose; no other bad effects had ever been seen. The extent of the disease and not the time that had elapsed was the important point in classifying a case as "early" or "late." Clinical improvement often appeared in a month or two, and serological improvement was noted after the first course of vaccine. Psychological factors played a part, as in any disease, but did not change serological reactions. The Glasgow work was in accordance with Miss Chevassut's observations. So far, the risks of making a stock vaccine had prevented the attempt, but that was, of course, the object of research. At present patients with profound permanent degenerations were not treated.

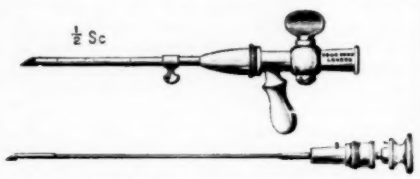
MIDDLE-CLASS PAYING WARDS.—The experiments begun two years ago by the Norfolk and Norwich Hospital of opening a house for the treatment of paying patients of the middle class has been so successful that the accommodation is to be enlarged. The house, which is adjacent to the hospital, and is run as an integral part of it, originally contained 12 single rooms with a theatre, but two rooms were subsequently added, and now a new ward of 20 beds is to be built. All patients are under the care of a member of the honorary staff, and admission is obtained either by paying £4 4*s.* per week plus a sum for medical attendance, which must not exceed 15 guineas, or by joining a contributory scheme with premiums amounting to 30*s.* a year. The cost of the new building will be defrayed in about eight years by the balance left from contributors' premiums, after deducting 12*s.* a day for each in-patient, and a levy from the fees of the honorary medical staff.

OPHTHALMIC HOSPITALS.—Last year the Royal Westminster Ophthalmic Hospital treated 1110 in-patients and 12,482 out-patients. The 14 rooms provided for patients who, while ineligible for admission to the public wards, are unable to pay nursing-home charges, have been used during the year by 130 patients. An electrotherapeutic department and a department for the treatment of squint have been opened.—The Royal London Ophthalmic (Moorfields) Hospital treated 2534 in-patients who were residents, on the average, 15·02 days and cost £3 7*s.* 2·05*d.* per week. There were 61,924 out-patients who cost 6*s.* 4·64*d.* each; there were 3386 operations in the out-patient theatre. In the refraction department 11,687 (5008 new) London County Council school-children received attention.

New Inventions.

A NEW PNEUMOTHORAX NEEDLE.

THE needle as shown in the sketch is made so that information of the position of the point as it goes through the chest wall is given by the manometer before the stilette is withdrawn. The needle is of the orthodox "Clive Riviere" pattern and has a terminal and lateral opening. The stilette, when in use, closes the terminal opening, but does not obstruct the lateral opening. It is kept in position by a small pin which fits into the opposite end of the instrument. This prevents the stilette turning round when in use. The needle is sharp-pointed, slightly bevelled, and when passed into a patient's chest with the stilette in use gives a reading on the manometer of the pneumothorax apparatus immediately the lateral orifice enters the pleural cavity. It has been found in practice that the lateral orifice does not get blocked in passing through the chest wall. The instrument is particularly useful in induction of the treatment.

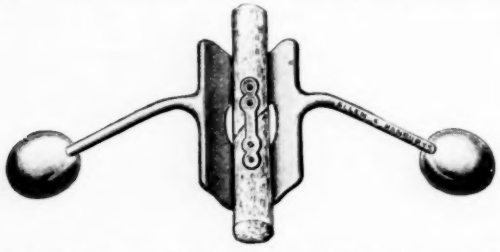


Messrs. Down Bros., Ltd., 21 and 23, St. Thomas's-street, London, S.E.1, are the makers.

FREDERICK R. G. HEAF, M.D., M.B.Camb.

RETRACTOR FOR BONE-PLATING.

THE illustration shows a pair of retractors which have been in use for the last two years and I have found them a great convenience, particularly in plating the shaft of the femur through the anterior incision described by Fleury. Owing to their slightly clawed edges which meet behind the linea aspera and to their



weighted outer ends, they are self-retaining. When they are in place with the towels tucked round outside them, they leave nothing exposed except the necessary length of bone including the fracture. The risk of infection or laceration of soft structures is minimised and the fixation of the plate is easier because the exposure is so complete. There is no difficulty in applying them; they stay put until removed; and their weighted outer extremities tend to lift forward the bone and restore its natural anterior bow.

The retractors are made by Messrs. Allen and Hanburys, Ltd., 48, Wigmore-street, London, W.

MAURICE G. PEARSON, B.Sc., M.B.Lond., F.R.C.S.

NEW FALMOUTH HOSPITAL.—Two Cornishmen resident in South Africa, Mr. William Mountstephens, a native of Falmouth, and Mr. Albert Charles Collins, a native of Stithians, have jointly presented Falmouth with a new hospital which has cost £16,000 without counting site and equipment, and was opened recently by Mrs. German, of Truro, a sister of Mr. Mountstephens. There are men's and women's wards of 12 beds each, and a children's ward with eight cots.

Reviews and Notices of Books.

HUMAN SPEECH.

Some Observations, Experiments, and Conclusions as to the Nature, Origin, Purpose, and Possible Improvement of Human Speech. By Sir RICHARD PAGET, Fellow of the Physical Society of London, and of the Institute of Physics. London: Kegan Paul, Trench, Trübner and Co., Ltd. 1930. Pp. 360. 25*s*.

THE scope of this work is well described in the sub-title, and covers observations, experiments, and conclusions on the nature, origin, purpose, and possible improvement of human speech. Sir Richard Paget has made very extensive experiments into the mechanism of the production of vowel sounds and of consonants, and has confirmed his theories by making models which imitate with a high degree of accuracy the various sounds produced by the human organs of articulation. He finds that the sounds produced in articulation are musical tones of definite pitch, the result of characteristic combinations of resonances set up in the human vocal cavity when tongue and lips are set in different and appropriate postures. In vowel sounds the main result is to produce, at each posture, a different pair of principal resonances, each pair being in association with a particular vowel. The pitch of these resonances is more easily recognised when speech is whispered; the effect of phonation is to cause, by vibration of the vocal cords, the passage of rhythmically pulsating air which colours the musical note by emphasising such overtones as lie within the pitch of the resonators. The production of the consonants is more complicated, for more than two resonators are in action; they are marked out, not only by pitch, but also by their change, and rate of change, in pitch, and they are all made by complete or partial closures of the front or back orifice of the anterior oral resonator. The essential difference between the so-called unvoiced and voiced consonants is not that of phonation, for they can be clearly distinguished in whispered speech; the difference is one of resonance, and the voiced series are produced, when whispering, either by the acoustic effects of direct access to the trachea, or by the resonance of a cavity formed between the true and false vocal cords. Dr. G. Oscar Russell, of Ohio University, has employed a form of pharyngoscope by which the movements of the throat can be studied during speech; this action of the ventricular bands, to form a resonating cavity, has been established by these means, which also show that the epiglottis coöperates, by a backward movement, in forming a constriction to produce a posterior resonator. Thus it is claimed that these parts of the larynx both act as essential organs of articulation.

The remainder of the book has less special interest to the laryngologist. In it the author develops the theory that language originated in gestures made with the lips and tongue in substitution for gestures made with the hands, which were becoming increasingly occupied with other functions. This "gesture theory" is copiously supported by an examination of the position of the lips, tongue, and mouth in the simple words of primitive languages. Finally, the author gives his views on the imperfections of language, and his suggestions for its improvement, for he believes that any imperfections of an existing language which cause difficulty in the process of coding thought into speech, or decoding speech into thought, are a stumbling block to the intellectual and material progress of the people who speak the language in question. We are all aware that modern languages and modern spelling, which have been evolved spontaneously, are full of serious defects—for instance, we have but five symbols for our thirteen or fourteen fundamental vowel sounds—but some of us are doubtful whether drastic conscious attempts at improvement are either possible or likely to be successful. Sir Richard Paget does not

advocate simplified spelling, or any other particular system, at the present time; he pleads for a period of liberty from rigorous orthography, coupled with the teaching of the phonetic alphabet to all English-speaking children, and the foundation of an "English-speaking Union," directed towards the improvement of the language and the ultimate standardisation of its pronunciation. Two points of medical interest are to be found in this part of the book. One is the suggestion, on the oral teaching of deaf mutes, that whispered speech should be taught in the first instance, as being homogeneous and simpler. The second is that, after excision of the tongue, the natural resonance of the vocal cavity is altered and lowered by increasing its volume and that this destroys the accurate reproduction of speech sounds; it is suggested that the original resonance might be restored in such cases by effectively lowering the roof of the mouth by means of a plate.

The book is written in a most lucid and interesting manner; Sir Richard Paget deserves congratulation on the results of an immense amount of patient labour in a field which has hitherto not received much attention.

DISEASES OF WOMEN.

Seventh edition. By HARRY STURGEON CROSSEN, M.D., F.A.C.S., Professor of Clinical Gynecology, Washington, University School of Medicine, &c.; and ROBERT JAMES CROSSEN, M.D., Instructor in Clinical Gynecology and Obstetrics at the same school. London: Henry Kimpton. 1930. Pp. 1009. 50*s*.

THIS book, which has established itself as one of the leading text-books on gynæcology in any language, has been well known in this country for many years. It is so well written and illustrated that the authors' argument can be followed without difficulty. During the four years since the last edition was published a considerable amount of experimental work on the physiology of reproduction and its relation to diet and internal secretions has been published. This work has been incorporated and serves to clear up our ideas on these subjects, although much is still obscure.

The author's attitude adopted towards radium treatment of cancer of the cervix is worthy of note. In America generally the radical operation is regarded as obsolete and radium as the only proper form of treatment. Prof. Crossen takes the view that the operation is not obsolete and should be employed in early cases with preliminary radium. This is an illustration of the balanced outlook maintained throughout the work.

CLINICAL PEDIATRICS.

Diseases of the Skin in Infancy and Childhood. By HOWARD FOX, A.B., M.D., Professor of Dermatology and Syphilology, New York University; Former President American Dermatological Association. Supervising Editor: R. S. HAYNES, Ph.B., M.D., Clinical Professor of Diseases of Children, Columbia University, New York. London: D. Appleton and Co. 1930. Pp. 372. In three volumes. Vol. XVI. 48*s*.

THIS is a straightforward and thoroughly scientific treatise on the cutaneous affections commonly met with in infancy and childhood. The author is one of the most prominent of American dermatologists, and is frequently an honoured guest at meetings held in other countries. In his classification and the general arrangement of his book he adopts a compromise between ætiological factors and clinical appearances, noting that there can be no really satisfactory solution of the difficulties until it is possible to base nomenclature on the known causation. Designed for the use of the practitioner, the book has hardly any histological descriptions or plates, but the deficiency is more than balanced by a wealth of clinical photographs, all most carefully selected to illustrate typical cases. There are 20 chapters, a brief and very simple formulary which contains all that the most scrupulous practitioner needs to memorise. The chapters on eczema and the tuberculides are particularly well done; it is interesting to note that lichen nitidus finds a nosological place among the latter, and that lupus erythematosus and granuloma annulare are also classed as tuberculous in origin, although in Europe their ætiology is still sub judice. Certain opinions are expressed about the treatment of tuberculosis verrucosa cutis, scrofuloderma and erythema induratum, with which few dermatologists in this country would agree. The two former diseases would not here be submitted to X ray therapy, but to surgical and actinotherapeutic measures, while it is our experience that Bazin's disease (erythema induratum) mostly yields to a few doses of novarsenobillon.

The book, which is very well got up, will be useful to all without special dermatological training, particularly to those working with children.

RECENT ADVANCES IN CARDIOLOGY.

By C. F. TERENCE EAST, M.A., M.D Oxf., F.R.C.P.Lond., Junior Physician, King's College Hospital; and C. W. CURTIS BAIN, *M.C.*, M.B.Oxf., M.R.C.P.Lond., Assistant Physician, Harrogate Infirmary. London: J. and A. Churchill. 1929. Pp. 342. 12*s*. 6*d*.

THIS book reviews advances in cardiology made during the past ten years or so, more especially for the benefit of practitioners who qualified before that time. As the authors point out, the advances to which they refer really go back farther, and date from the work of Mackenzie. In recent years the tendency has been to devote less attention than previously to morbid anatomy and more to the disturbances of cardiac function, the study of which has been greatly facilitated by the introduction of the polygraph and electrocardiograph. It is principally with functional disorders and their diagnosis and treatment that the book is concerned. The opening chapter on coronary thrombosis is the best in the book; it gives an admirable account of the condition. This is followed in the natural sequence by a summary of the current views on the ætiology of angina, and a consideration of a miscellaneous group of factors helpful in the diagnosis of myocardial disease. Some of these hardly seem to merit a place amongst "recent advances." Gallop rhythm, for example, has long been recognised as a sign of sinister significance, and nothing of importance has been added to our knowledge of this disturbance in recent years, nor can we fairly claim to have made much advance in the treatment of the cardiac complications of pneumonia. Sections such as these might be better described as current conceptions rather than recent advances in cardiology. But they are none the less likely to be of value to practitioners provided they remember that the work is not intended to be a text-book and deals only with one aspect of the subject. The chapter dealing with the X ray examination of the heart is concise and well illustrated, and the chapter on the electrocardiograph gives a clear account of the fundamental principles on which this method is based.

PRACTICAL MASSAGE AND CORRECTIVE EXERCISES.

Fifth edition. By HARVIG NISSEN, late President of Posse Normal School of Gymnastics, and Lecturer and Instructor of Massage and Swedish Gymnastics at Harvard University Summer School. Philadelphia, Pa.: F. A. Davis Company. 1929. Pp. 271. $2.50.

THIS book is not calculated to find any great demand in this country. The student in training will find it inadequate to meet his or her paramount need, that of satisfying the examiners of the Chartered Society of Massage and Medical Gymnastics, while

medical men will require something far more authoritative and up to date. The traditional teaching of bygone ages is reproduced, regardless of the advance in medical knowledge. Forcible stretching is still included under the head of "Passive Movements," and we read of the value of kneading, which is "used to crush newly formed vessels." We are told that another form of massage may cause "impure matters" to be "more firmly embedded in the walls of the blood-vessels," and other relics of the past are included in the text. Even the anatomy is not up to date, as an elaborate argument is based upon the supposition that inversion and eversion of the foot takes place at the ankle-joint, while the description of the action of various muscles is misleading. On the pathological side we are told that "great force must be applied when the shoulder or elbow-joints are stiff from dislocations, fractures" without any word of warning as to its dangers, and the perilous advice is given elsewhere that "muscles and nerves" should be put on the full stretch, "especially in paralysis." These are merely a few examples drawn from a large number. Those who wish for guidance in the matter of physical treatment should seek it elsewhere.

LE DIAGNOSTIC DES ANGINES AIGUËS.

By A. B. MARFAN, Professeur Honoraire à la Faculté de Médecine de Paris, Membre de l'Académie de Médecine. Paris: Masson et Cie. 1929. Pp. 87. Fr.10.

IN writing this little book on acute inflammations of the throat Prof. Marfan had two objects in view. He wished to show that on purely clinical examination it is possible, in the majority of cases, to make a diagnosis of diphtheria, thereby enabling antidiphtheritic serum to be given without delay; also he wished to plead for a revision of the clinical descriptions of the acute inflammations of the throat, in particular the so-called herpetic type. The early administration of serum in diphtheria is clearly so important, from the point of view both of treatment and prophylaxis, that for this section this book is of value; It is obviously written by one with wide experience of throat affections and should prove helpful to those who are called upon to make difficult decisions. The concise account of the many acute conditions met with in the throat, with special stress on the differential diagnosis from diphtheria, is admirable.

MEDICAL INSURANCE EXAMINATION.

Modern Methods and Rating of Lives. Second edition, enlarged. By J. PATERSON MACLAREN, B.Sc., M.B., C.M., late Examiner for University of Cape of Good Hope and Chief Insurance Medical Officer. London: Baillière, Tindall and Cox. 1929. Pp. 646. 30*s*.

IN his introductory remarks the author emphasises the extreme importance of medical examination for life insurance. He maintains that ability to assess length of life can only be attained after years of experience of diverse forms of practice. Recent developments in aids to diagnosis have in his view, led to greater accuracy in this assessment. The book is divided into three parts. The first describes and explains the general examination and confidential report; the second deals with the examination of the various systems in detail, and the third with diseases as insurance impairments. A brief outline of the methods adopted in rating is given; diseases of the various systems are clearly discussed and tables are included showing the ratings adopted by various companies for degrees of disease or deviation from normal. In this edition the problems of diagnosis and prognosis in relation to abnormalities of blood pressure, early pulmonary tuberculosis, heart murmurs, new growths, glycosuria and albuminuria have been dealt with more fully. Throughout an effort is made to show how the various findings should be correlated by an examiner in assessing a risk; for example, in reporting on hypertension the examiner is advised to put to himself such questions as: Has the proposer a strong will? Does he indulge in any excesses? Will he be likely to amend his diet habits or mode of life? On the answers will depend his recommendation to accept, with or without loading, to postpone, or to reject. The ratings quoted are exceptionally full; the book is amplified by 12 illustrations, and in the index heavy type is used to direct attention to the more important references. The book clearly expresses the special attitude which the insurance examiner should adopt to medicine, and might be read with advantage by the general physician who is largely concerned with prognosis as well as by those who do many examinations for insurance.

DIETETICS.

The Science of Nutrition Simplified. By D. D. ROSEWARNE, M.R.C.S. Eng., L.R.C.P. Lond., late Honorary Actino-Therapeutist and Assistant Physician, City of London and East London Dispensary. London: Henry Kimpton. 1929. Pp. 314. 6*s*. 6*d*.

Food Values in Practice. By ETHEL M. DOBBS, M.A. Lond., Lecturer in the Department of Hygiene and Public Health, Battersea Polytechnic. London University Press, Ltd. 1929. Pp. 240. 4*s*.

Dr. Rosewarne's small book aims at presenting the most important principles of nutrition in language that can be understood by the ordinary reader. Its last chapter is devoted to an account of some of the larger text-books dealing with particular aspects of the subject for the benefit of readers who wish to study the science of nutrition more thoroughly. The exposition of the subject is clear and, on the whole, free from prejudice. The section dealing with infant feeding is disappointing in view of the promising results that are being obtained all over the world by the application of modern knowledge to the problem of the prevention of disease in early childhood. Cow's milk, with the possible addition of lactose, is apparently considered a complete diet for the infant from birth till the age of nine or twelve months. Those with experience of the feeding of infants in large cities will not agree that such a diet can ensure the prevention of rickets, the formation of good teeth, and the prevention of nutritional anæmia.

Miss Dobbs aims in her little book to provide a working knowledge of the essential functions in the human body, and at the same time to give practical instruction in the marketing and storage of food, the construction of dietaries, and the methods of cookery. The fact that she is acquainted with some of the modern discoveries in the field of nutrition will not necessarily ensure that the housewife supplies her family with the food best calculated to keep them in good physical condition. Those with limited incomes are bound to find difficulties in purchasing a sufficiency of the protective foods that are needed at all ages, and even such foods may not exert their full beneficial effect if they are purchased without due regard to individual qualities, or are injudiciously cooked and served. The instruction here given will help the organiser of the household budget to choose wisely. The last hundred pages are devoted to selected recipes suitable for healthy individuals and for those suffering from simple ailments such as constipation and obesity. A practical book such as this should prove of great value to the housewife, whether she be rich or poor.

Buchanan's Dissection Guide, edited by E. Barclay-Smith, R. H. Robbins, and J. E. Frazer, has just been published by Messrs. Baillière, Tindall and Cox at the price of 10*s*. 6*d*. (not 12*s*. 6*d*., as erroneously stated in an advertisement).

THE LANCET.

LONDON: SATURDAY, MAY 17, 1930.

THE TEACHING OF PREVENTIVE MEDICINE.

THE progress of education is marked by the efforts of the teachers who have gained a footing in the curricula to obtain greater recognition for their subject, and the struggles of reformers to find room for new fields of study. Science is still contending with the classics against heavy odds in the scholastic world, and in elementary education the three r's are faced with the encroachments of art, domestic science, hygiene, and handwork. Indeed, since continuity of policy and freedom from turmoil are necessary to the pursuit of learning, it would be disastrous if chopping and changing of curricula to meet the desires of educational radicals were unresisted by their more conservative, because less dissatisfied, professional colleagues. In medicine this struggle for recognition is more frequently recurrent and more acute than in other provinces of education, because the march of knowledge is more rapid and along so irregular a front. New developments lead to new specialisms and new lectureships, and time has to be found for each of these subjects in the curriculum.

This constant state of flux in medical education has, of course, resulted in a good deal of unevenness in the allocation of time to different studies in the various medical schools, in spite of the coördinating influence of the General Medical Council. The presence in a particular school of a brilliant exponent of some branch of technique, or the accident that a chair or lectureship has been endowed, may be determining factors, and experiments of this kind help us to assess the value of special courses of study before they are generally accepted. A time arrives, however, when it is desirable to pool experience and to arrive at a national policy. The Society of Medical Officers of Health, being impressed with the unsatisfactory provision made for the teaching of preventive medicine in several schools, appointed last year a committee, under the chairmanship of Prof. W. W. JAMESON, to inquire into this subject and also into the requirements of the various examining bodies. Their report, which appears in the May issue of *Public Health*, sets out in detail the status of the teachers of this subject, the number of lectures and demonstrations given, the syllabus in certain schools, and the examination requirements. A useful summary is also given of the position in foreign countries. Briefly, the information collected indicates that there is great inequality in the teaching of preventive medicine in the different medical schools of this country, lecture courses varying in length from 10 to 60 lectures and practical demonstrations from nil to 12. On the whole, European and American countries appear to devote more time and attention to the subject. The committee has made recommendations which, in view of the importance of preventive medicine, cannot be regarded as unreasonable even by those who are alarmed at the prospect of an overloaded curriculum and further extension of the period of undergraduate study. The number of lectures, it is suggested, should be not less than 24, the course being held not earlier than the penultimate year of study, and no student should be allowed to qualify without having passed a separate examination in public health and preventive medicine.

Most important of all, however, is the prominence given throughout the report to the need for permeating the whole curriculum with the preventive idea. It is now seven years since the General Medical Council resolved that "throughout the whole period of study the attention of the student should be directed by his teachers to the importance of the preventive aspects of medicine" and Sir GEORGE NEWMAN, in his "Recent Advances in Medical Education in England," showed how it could be done. Yet the committee of the Society of Medical Officers of Health has been unable to ascertain any instance of a school where a concerted endeavour can be said to have been made to introduce into the teaching a real emphasis on the importance of prevention. The schools are lagging behind public opinion. It is notable that the state of affairs is worst in London, where teaching is based on hospital units, and where the atmosphere, necessarily clinical, is uninfluenced by the great public health movement of which the health authorities are the centres. In the provinces, and especially in the ancient universities of Scotland, where there is more community of interest between town and gown, the place of prevention is less liable to be forgotten by those responsible for teaching medical students. The Society of Medical Officers of Health are forwarding their committee's report to the General Medical Council by whom it will no doubt receive the consideration which it deserves.

THE COST OF LITIGATION.

THE London Chamber of Commerce, through a subcommittee of its Parliamentary and Commercial Law Committee, has been examining the causes of the present high cost of litigation and the possibility of mitigating them. One suggestion in the subcommittee's report is that in all cases involving technical matters an assessor should sit with the judge as adviser, in the same way as the Elder Brethren of the Trinity House in Admiralty cases, to assess damages. No expert evidence, says the report, should be given; but in cases involving more than, say, £2000, the parties should be allowed each to put forward one expert on each side to act as a demonstrator of the technical points at issue, though not as a witness; in cases over £10,000 the parties to be allowed to call one expert witness on each side if they wish. The possible use of members of the medical profession as assessors is a point which has often been urged in the past. Workmen's Compensation Act procedure has managed to take advantage of medical knowledge in this way and machinery exists by which a High Court judge could avail himself of medical assessors' services though he is naturally reluctant to relinquish his judicial responsibilities. The Chamber of Commerce plan, however, seems more suitable for cases concerning commercial contracts than for the kind of litigation in which doctors are themselves mainly concerned. Rule-of-thumb scales for valuing litigation will hardly suit actions against physicians or surgeons for alleged negligence. Would *Harnett v. Bond*, for instance, have been classified beforehand as a £2000 case or a £10,000 case? Other recommendations in the subcommittee's report appear similarly to have special application to the classes of proceedings dealt with in the Commercial Court rather than

to the ordinary actions which come before a jury. There is a suggestion that pleadings be further cut down and that viva voce evidence and cross-examination be eliminated and replaced by agreed documents and brief signed statements. A case like *Crotch v. Miles* could hardly have been dealt with thus. To deny the right to call expert witnesses may amount to a denial of justice. Endeavours have been made, notably in the Chancery Division where there are no juries, to limit the numbers of expert witnesses; but these efforts are not universal. Undoubtedly the modern trial is unduly prolonged. A fashionable leader nowadays takes several days over a cross-examination where the giants of the past were content with a couple of hours. Yet brevity sometimes defeats itself, nor have all judges the same standard of brevity. Lately, in a claim for damages arising out of a motoring accident, counsel for the defendant took the point (at the close of the plaintiff's case) that there was no evidence of negligence to go to the jury. The judge agreed and stopped the case without calling on the defendant. For this success the counsel was scolded by the Court of Appeal. He was told he had fired too soon. In remitting the case for a fresh trial the Court of Appeal punished the defendant by giving the plaintiff the costs of the appeal and directing that the defendant, even if successful at the re-trial, should not have the costs of the first trial. The Chamber of Commerce report says that dates should always be fixed for trials—a great convenience if only the length of a case can be accurately foreseen. It comments, too, upon the illogical rule by which a junior counsel must receive a brief fee equal to two-thirds of his leader's fee though he would probably be prepared to fight the case single-handed for much less. Professional fees are matters which may in time be adjusted by the laws of supply and demand. It is significant that for many months business in the Temple has been reported to be very slack. The Chamber of Commerce remedies may not all be equally acceptable, but the fact that the inquiry should have been instituted is evidence of grave dissatisfaction with the present conditions of litigation.

MEDICAL SERVICE UNDER NATIONAL HEALTH INSURANCE.

THE report made by Sir ALFRED WATSON, the Government Actuary to the Ministry of Health, after a scrutiny of the sickness and disablement experience in a group of approved societies, is an extremely valuable document, as the comments made upon it at the time of its issue and its subsequent discussion in the House of Commons show very clearly. It forms a review from certain aspects of the administration of the National Health Insurance Act, revealing the facts that, while certain of the benefits promised under the Act could not be said to have materialised, the pecuniary cost of the machinery, already a heavy burden, bade fair to advance to a point at which it would be insupportable. Many questions involved in a discussion of the working of the Act were debated in the House during the past few days, and as one result it became known that the Ministry of Health propose to follow up various lines of investigation, indicated by the facts in the report, and intend to take the public into their confidence at definite intervals. This means alike that the Ministry recognise the imperfections of the Act as definitely requiring amendment or removal, and admit that only with the coöperation of the public can the necessary changes be effected. There is not, either among the public or in the ranks of the medical profession, any serious consensus of opinion that the Act does not represent a large attempt to secure the improvement and maintenance of the national health on some broad contributory scheme—there being no other practicable course; but from all sides the working of the Act has given rise to legitimate criticism since it became the law of the land. The insured population find that the benefits are not administered in a symmetrical way, the contributions exacted being everywhere the same while the benefits accruing vary greatly according to the success and economy of the particular approved society. The doctors admit that the scheme, as far as it goes, has in many directions advanced their material interests, but it has brought under their charge a vast mass of patients for whose treatment they have become responsible when they are often unable to provide the appropriate care, and where always their professional work has to be conducted in accordance with regulations that in individual instances may be vexatious even though they are necessary as part of the extensive scheme. The approved societies are regarding their pecuniary commitments with a steadily increasing apprehension, and would assuredly welcome changes promising to lighten their burdens as stewards; and such changes would be all to the good if resulting economies were not made at the expense either of the insured population or the doctors.

We reported at length last week, under the heading of Parliamentary Intelligence, the debate on the administration of the Act in its early phases; the sequel to the debate will be found in our columns to-day, where the feeling of dissatisfaction, in many regards with the Act, as it is, is reflected in the speeches of all the participants in the discussion. Indeed, no one can read those speeches, delivered from their different angles, without seeing how widespread now is the opinion that the National Health Insurance Act will have to be reformed, though it is not so easy either to anticipate in which direction reform will first be attempted nor to forecast how far any particular additions or modifications will have immediate beneficial influence on its working. The gist of Sir ALFRED WATSON'S report was that the burden of the sick, receiving benefits under the Act, was increasing in a threatening manner, and where the fact was admitted without reserve one of two conclusions was reached in most places where public expression of opinion found vent—namely, that a significant proportion of the national sick list was to be regarded either as the outcome of malingering or as the result of lax certification on the part of the doctors; in a sense this is but one opinion looked at from two points of view, for the pretender to pathological conditions can only make good his claims at the expense of the critical acumen of the doctor. In the House of Commons Dr. H. MORGAN repudiated vigorously the suggestion that the doctors could be accused of manufacturing malingerers in this way, while his words were those of wisdom as far as he viewed the increases of the money spent upon administration being not essentially due to lax certification but rather to a generally imperfect method of looking at the benefits to be expected from the Act. Colonel FREMANTLE followed and quoted a statement made by the chairman of the National Conference of Friendly Societies last November which had similar force, for he affirmed that no scheme, however good, would succeed if it removed the incentive to provide for the future and encouraged all and sundry to look to the State to make provision for that future.

The debate in the House of Commons should prove of real use in helping the legislature to appreciate that the reform of medical service under the National Health Insurance Act is called for on all sides, and that, while there should be no insuperable difficulty in reconciling conflicting interests when the radical faults are faced, there must be a willingness to proceed thoroughly. It is not sufficient to attribute the present situation of the service either to a want of conscientiousness on the part of doctors or to an exhibition of laziness and duplicity on the part of panel patients. Nor is it unreasonable on the part of approved societies to ask for protection through legislation against the risks of disabling expenditure. Many of the cases which are open to criticism as being examples either, on the one hand, of malingering, or, on the other hand, of lax certification may well be exactly those cases where early treatment has been required or where an extension of treatment, when a certain measure of convalescence has been reached, is necessary to firm recovery. The reluctance of the doctor to give a certificate in early stages while a certain capacity for work remains should not require to be excused on the ground that there must be no laxity in certifying, while the greatest factor in the preservation of public health is the early identification and treatment of disease. Nor should patients be too promptly sent back to work in response either to pressure from approved societies or their individual desire to carry on—and medical men do not agree that the insured population show any general desire to remain out of work when capacity to work has been reached. In the long run the funds of the approved societies would benefit from the earlier treatment of a growing proportion of their charges, as well as from increasing relief to their expenditure on recurrent conditions of sickness. These are things which will have to be remembered in that general improvement of medical service of the insured, which must soon be forthcoming, implied in the extension of benefits and of institutional care and the regularised assistance of a specialist consultant service. The position, as far as it is critical, demonstrates that the beneficiaries under the Act are relying upon it with a growing confidence; we have not here a disgruntled people demanding the removal of things that irk, but an intelligent people who see that something good would become something better if the lessons of experience were followed.

TREATMENT OF URETHRAL STRICTURE.

THE subject selected by Mr. JOCELYN SWAN for his paper before the Medical Society for the Study of Venereal Diseases is of considerable interest to all engaged in general practice. Especially important is the cause of urethral strictures, and, as will be seen from the report on p. 1069, Mr. SWAN himself, and some of those who spoke after him, were of opinion that many are produced by over-drastic treatment. The urethral mucous membrane is a delicate structure and it is not surprising that some of the methods formerly in vogue—especially during, and for a few years after, the late war— resulted in its damage and subsequent fibrosis. At that time the great increase in the incidence of gonorrhœa led to desperate efforts to find more efficient methods of treatment. The fact that the gonococcus soon penetrates the lining of the urethra and gets beyond the range of local antiseptics induced experimenters to seek methods of reaching it by means of electrolysis, cauterisation, and penetrating lotions. The immediate result was undoubtedly an increase in traumatic urethritis and a higher incidence of stricture. Fortunately, the pendulum has swung back again and most of these heroic methods have been abandoned. The fact that our chief hope of dealing with the gonococcus lies in preserving the vitality of the tissues has been recognised, and probably we shall see fewer strictures during the next decade. Moreover, the wider use of the urethroscope will undoubtedly lead to an earlier recognition of stricture formation and consequently to prompter treatment. It is the old and neglected stricture that is difficult to dilate. The more adult the fibrous deposit and the greater the submucous fibrosis, the less response follows to the passage of bougies or the use of the Kollman's dilator. If a stricture is recognised before it has materially altered the calibre of the urethra a complete cure may be possible. If it has been left until the passage has become so narrow as to produce an obvious change in the character of the stream no treatment except excision can restore the normal lumen of the tube. The moral to be drawn from Mr. SWAN's paper is, therefore, first that we must make every effort to avoid by over-drastic treatment the formation of strictures, and, second, that by the use of the urethroscope we must learn to detect them at a stage when they are amenable to treatment.

In discussing the treatment of the long-standing stricture Mr. SWAN laid emphasis on the excellent results of internal urethrotomy. The fact that in our hospitals this operation has largely displaced the older measure of external urethrotomy is in itself an indication of an improvement in the general level of treatment. There are few cases, even amongst the neglected, in which the expert fails to pass a filiform bougie, and therefore there are few instances in which a Wheelhouse operation is forced upon the surgeon. Nevertheless, by looking through the operative statistics of general hospitals, institutions are still to be found in which internal urethrotomy is seldom performed, and for this reason Mr. SWAN's insistence on the excellence of the results obtained from the Maisonneuve method is to be welcomed.

Since it is in the hands of the general practitioner that the early recognition of stricture rests, the part he plays in the improvement of its treatment is all-important. The fact that the old and desperate cases that formerly thronged the out-patient departments of our hospitals are nowadays seldom seen is proof that he is beginning to recognise his responsibility.

THE RATING OF HOSPITALS.—The town council of Blyth (Northumberland) has voted to the Knight Memorial Hospital in that town a sum equal to the difference between the old rates and those imposed by the recent reassessment. The Northumberland county council has convened a conference of representatives of the five assessment committees of the county and officials of the local hospitals together with the rating officers, to consider the whole question of hospital rating.

MANCHESTER RADIUM INSTITUTE.—At the annual meeting of the Manchester and District Radium Institute on April 30th it was stated that the waiting-list was "appalling." If all those who were waiting took their turn, it would be three or four months before they could be admitted to the institute. Selection had therefore to be resorted to, and in many cases patients were dead before they could be admitted. There was need for more radium, more staff, and more money. The report for 1929 by the honorary radiologist, Dr. G. E. Birkett, states that the number of patients registered was 1257. Of these, 724 were found to be suitable for treatment, 648 were treated and 76 were still awaiting treatment. During the year the number of in-patients was 324. The limit of hospital patients was now ten; for private patients four. There are four additional beds at the Christie Hospital. Modern technique demands a longer stay in hospital, and the average period is probably four times as long as in 1921.

Annotations.

"Ne quid nimis."

PUBLIC ASSISTANCE COMMITTEES AND THE PRESS.

A DEPUTATION from the Newspaper Society, asking the Minister of Health's aid in asserting the right of the press to be present at meetings of Public Assistance Committees, has met with scant success. The Minister held out no hope of official efforts towards new legislation in the near future, and added that in any case he would have to consult the views of local authorities first. The present situation is perfectly clear. After certain local incidents had given prominence to the need of legislation, the Local Authorities (Admission of the Press to Meetings) Act of 1908 was passed "for the admission of the press to the meetings of certain local authorities." The specified authorities comprised county and county borough councils, borough councils (including those in metropolitan boroughs), urban and rural district and parish councils, boards of guardians, and any other local body having the power to make a rate. Boards of guardians, as is well known, have been abolished by the Local Government Act of last year. References in Statutes to guardians are (by virtue of the table of equivalents in the tenth schedule to the Act) to be construed as references to county and county borough councils. Both the latter bodies were already within the Act of 1908, so that representatives of the press have the right of entry to their meetings. But the new Guardians Committees, or Public Assistance Committees, are not within the 1908 Act either by virtue of specific mention thereinor by virtue of succession or by virtue of being entitled to raise a rate. Thus to extend the 1908 Act to a Public Assistance Committee will require fresh legislation, and no student of the political horizon or of the congested programme of the Government will be surprised to hear that the Minister of Health deprecates further commitments at the moment. There seems little prospect of a private member being able to introduce the necessary Bill in default of official action. There remains, therefore, only the appeal by the local press to the individual committee as a matter of favour. The functions delegated to the committees are wide in scope; further delegation may make them even wider. If the local government electors are to have adequate information of what their representatives are doing, the press should have reasonable access to meetings. The committee could always—as the bodies within the 1908 Act are entitled to do—exclude the reporters by special resolution whenever such a course is deemed desirable.

FURTHER ADVANCES IN THE PATHOLOGY OF PERNICIOUS ANÆMIA.

Two communications from the Thorndike Memorial Laboratory at the Boston City Hospital, which appear on another page, show that many of the problems arising out of the liver treatment of pernicious anæmia, which was initiated in this laboratory, are being tackled with promising results. Dr. W. B. Castle and his collaborators had previously demonstrated that by an interaction of normal human fasting gastric contents and beef muscle, both of which are separately ineffective, a substance is produced which will cause an improvement in pernicious anæmia comparable to that obtained with liver feeding. They have now studied this reaction on 15 additional cases of pernicious anæmia in order to ascertain the nature of (1) the extrinsic factor of the reaction contained in beef muscle, and (2) the intrinsic factor present in normal human gastric contents. They find that the proteins precipitated at pH 6 from beef muscle may act as the extrinsic factor. The nature of the intrinsic factor contained in the normal gastric juice remains unknown. None of the existing tests of gastric function serve to detect it; we know only that it may act in neutral solution and is destroyed by heating, and that it is not hydrochloric acid, pepsin, or rennin. It seems probable that the ingenuity of these workers will shortly devise some means of identifying this elusive factor. Meanwhile Dr. Janet M. Vaughan, and Dr. Gulli Lindh Muller, working with Dr. George R. Minot, the director of the laboratory, have made interesting use of the circumstance that the bone-marrow of the healthy grain-fed pigeon is of the same type as the bone-marrow in humans, pathologically characteristic of pernicious anæmia. The idea occurred to them that the administration to pigeons of substances capable of alleviating a deficiency in man associated with this megaloblastic hyperplasia of the marrow might provoke a response in the bird similar to that resulting in clinical cases. This response, which consists mainly of a rapid increase in the circulating reticulocytes, might then form the basis of a biological test for the potency of these substances. Intravenous injections of liver preparations known to be effective in pernicious anæmia gave a consistent response in 14 healthy birds. Two pigeons failed to react to a potent fraction, possibly because only extremely small doses were given. Negative results were obtained with extracts ineffective in pernicious anæmia and with liver extract in which the active principle has been destroyed. These results are likely to have considerable biological significance, though as yet they are not consistent enough to justify the assumption that a sure test for the potency of liver extracts has been discovered.

THE TAVISTOCK CLINIC.

A YEAR ago the clinic for functional nervous disorders at 51, Tavistock-square, London, believed that it was doing absolutely all the work that was possible in the limited space at its disposal, yet it has continued to expand, chiefly by means of working on Saturday afternoons and up to 10 o'clock at night. It received 625 new cases during the year, and had a total of 918 under treatment. There are now 14 members of the medical staff in regular attendance, and some of them contrive to engage in research as well as treatment. The periodical staff meetings to discuss the work have done much to foster a corporate spirit. In addition to the doctors, there are now two lay workers, a psychologist for mental tests and a specialist in speech defects. At present the speech therapy department, which was only opened last October, is confined to children, but it is shortly to be extended to adults. There has been a considerable increase in the number of probation cases referred to the clinic by the courts, and also of ex-Service cases sent by the various organisations that deal with old soldiers. One of the urgent needs is a better social service, for the funds will at present only allow one paid half-time social worker and, valuable as voluntary help is, it cannot but be irregular; and the time of the physicians is taken up—especially in the children's department—with many investigations which could profitably be relegated to a visitor. This department has increased its work by one-third during the year, and the children are brought earlier than they used to be; nevertheless the belief that a child will grow out of its difficulties is still the cause of much waste of valuable time. The experience of the physicians here is that the child far more often grows into them or into worse ones. A Margaret Morris class was started in April, and has proved a useful part of treatment, while other interesting therapeutic measures include fencing and groups for painting and artistic expression. The long-desired hostel was opened in September, and has room for 14 patients. It is run on communal

lines, every inmate helping in the work of the house. A weekly fee of £2 12s. includes residence and treatment at the clinic, as well as the benefit of occupational classes twice weekly. The clinic has worked during the past year in coöperation with the National Council for Mental Hygiene, as well as with other kindred organisations, and combined efforts have done much to help the financial situation. Nevertheless, there is a deficit of nearly £500 on the year's accounts, and an additional £1000 in annual subscriptions is needed to place the work on a satisfactory basis. That it is a work appreciated and needed is shown by the fact that the waiting-list has had to be closed owing to the number of applicants, and that there is at the present time an unofficial list of some 250 people waiting to be put on the waiting-list as soon as it is reopened.

FLUCTUATIONS IN VENEREAL DISEASE.

IN this self-satisfied age we may think that such phrases as "genius epidemicus" are an anachronism, but it seems doubtful whether the factors governing the rise and fall of the venereal diseases can even now be given any more accurate description than "mysterious." The encouraging reports quoted in our issue of April 26th (p. 927) are somewhat discounted by the story of the behaviour of these diseases in Helsingfors and in all Finland, which Dr. N. E. Wilén contributes to the February number of *Finska Läkaresällskapets Handlingar*. The curves for syphilis, gonorrhœa, and ulcus molle during the last two decades have been on the whole parallel, he says, and thus far it is evident that they have followed some common law. But while measures directly devised for combating these diseases seem to have influenced them but little, social upheavals of various kinds apparently played a comparatively important part. The years 1900, 1912, and 1923 showed the lowest dips in the incidence of the venereal diseases grouped as a whole; they amounted to 7·2 per thousand inhabitants in the first year, to 12·2 in 1912, and to 14·6 in 1923. The highest peaks were observed in 1905, 1917, and 1927, the corresponding figures being 23·3, 27·8 and 26·7 respectively. The Russianising of the Finnish police force in the period 1900–05, and the great strike of 1905 corresponded with high rates. The regulation of prostitution was abolished on May 16th, 1907, but the marked decline in the incidence of all the venereal diseases about this time was demonstrable from 1905 to 1910—i.e., it occurred before as well as after this event. With regard to the possibility of salvarsan and allied drugs influencing the syphilis rate, it should be noted that it was not till after the late war that these drugs were extensively used in Helsingfors. In 1910, the year when salvarsan was introduced, there were 12 new cases of syphilis per 10,000 inhabitants in the capital. This figure rose considerably during the following years, attaining a peak of 54 in 1919. From this year till 1923 there was a remarkable decline, the number of new cases being reduced in the last-named year to 16. Since then, however, there has been an almost unbroken rise, the corresponding figure for 1929 being 29. Hence Dr. Wilén's conclusion that "it would therefore seem that salvarsan treatment is unable to counteract the periodic increase in the incidence of this disease to the extent hoped for." His study of the incidence of syphilis in Stockholm before and after the Swedish law (Jan. 1st, 1919) against venereal disease shows that while there were only 32 new cases of syphilis for every 10,000 inhabitants in 1918, this figure rose to 40 for 1919. It is true that the following years showed a marked decline, and in 1925 there were only five new cases in Stockholm per 10,000 inhabitants. In 1927, however, this figure jumped to 12. What is still more remarkable is that, during these post-war years, the syphilis curves of Helsingfors and Stockholm ran parallel to a striking degree, although the venereal disease legislation of Sweden was not paralleled in Finland. Dr. Wilén concludes that his Scandinavian studies give a certain degree of support to the thesis of Buschke, Gumpert, and Langer, who in 1927 in the *Münchener medizinische Wochenschrift* expressed doubts about the modern treatment of syphilis being the chief factor in its periodic decline. These writers consider that the incidence of the venereal diseases is mainly determined by economic and social factors, and that the explanation for the fluctuations in their frequency is to be found (or hidden) in the term "genius epidemicus."

THE PSYCHOLOGY OF THE BLIND.

BEFORE the nineteenth century the blind in all countries necessarily led isolated lives, and only those specially favoured by circumstances could manage by prodigious efforts to develop their faculties. Most people still find it hard to realise that a person blind from infancy, if only he is given the opportunity to develop those other senses which are relatively unimportant to the sighted, can acquire a consciousness of the world in which he lives very little inferior to that of the sighted person. This result, however, can only be attained by appropriate training, which can be bestowed on blind pupils collected in a school, but hardly on the isolated blind child. The movement for the amelioration of the condition of the blind really started in 1784, with the establishment in Paris of the first school ever known for blind children by Valentin Haüy. The movement has continued to gain momentum up to our own day, when the State—more especially in England—has taken the blind under its special protection. Of this movement the Blind Persons Act of 1920, a measure aiming at the organisation of voluntary effort throughout the country and its supplement by monetary aid from the State, probably marks the climax. Two books recently published[1] give a clear account of the problems involved in the care and education of the blind and of the psychological aspects of their development. Mr. Ritchie, who gives his principal attention to the history of the movement for the betterment of the blind, is also concerned with their mental processes. His last three chapters provide an excellent summary of the consequences involved by the absence of the sense of sight on the mental content, behaviour, and character. Prof. Villey, who provides a psychological study of great value, complains that the blind are still victims of the ignorance of the public concerning their real position in the community. An excuse for this ignorance is that in some cases blindness is only part of a diseased condition of the body that involves mental defect, but mostly this is not so. The deprivation of a single sense, even the most important one, need not, by itself, render the blind man either intellectually or morally inferior to his sighted neighbours. In reading the history of the educational facilities offered to the blind the paramount importance of the invention of the Braille alphabet becomes obvious. Mr. Ritchie describes its struggle and final victory over competing systems, practically the only other survivor of these being the Moon system, which, being easier to learn, is more adapted to the use of those who become blind late in life. The Braille alphabet, unlike its predecessors, abandoned any pretence of making the embossed letters adapted to the sense of touch resemble the letters adapted to the sense of sight. Full advantage is taken of the extreme sensitiveness of the finger-tips, and its success is largely due to this fact. The National Library is now a varied collection, showing not only wise discrimination but a wide catholicity of choice. In the year ended in March, 1929, the number of

[1] The World of the Blind. A psychological study by Pierre Villey, Professor of Literature, Caen University. Translated by Alys Hallard. London: G. Duckworth and Co., Ltd. 1930. Pp. 403. 7s. 6d.—Concerning the Blind. Being a historical sketch of organised effort on behalf of the blind of Great Britain, and some thoughts concerning the mental life of a person born blind. By J. M. Ritchie, M.A., Ph.D. London: Oliver and Boyd. 1930. Pp. 235. 7s. 6d.

volumes circulated reached the huge total of 231,000.

To account for the great facility with which many of the educated blind go about their ordinary work or play many people, including even psychologists, have supposed that their surviving senses are more acute than those of other people; this explanation has been applied especially to the deaf-blind. Modern investigations, however, disprove the assumption on which it rests. The minimum excitation necessary for provoking a tactile or auditive sensation is not less for a blind person than for one who sees. It is in the way that these sensations are interpreted by the blind that the superiority of the latter consists. Similarly, the shepherd and the townsman may each possess normal sight, but while the shepherd can distinguish each of his sheep individually, to the townsman they appear all alike. Both books deal with the various implications of the substitution of one sense for another. The "sense of obstacles," a faculty possessed by many of the blind which makes them conscious of obstacles in their path, has been the subject of much controversy. Monsieur Villey attributes it to the sense of hearing, whereas Mr. Ritchie holds that although the ear may take a leading part in this appreciation of obstacles, it acts rather as an organ for the detection of pressure than as a vehicle for sound. An interesting psychological problem discussed in both books concerns the conception of space possessed by the blind. To the ordinary man it is difficult to understand how a person born blind can have mental images of objects at all resembling those of the sighted person. The fact is that their images are not unlike, but are reached by a different method of interpretation. Visual images without mental analysis do not tell one much, as is illustrated by the mistakes made at first by a patient with congenital cataract who obtains sight by operation in adult life. The sense of touch is an alternative channel to that of sight, and when interpreted by mental processes may result in conception of the outside world, not perhaps as complete as that of the sighted, but still of the same order. All this is worked out at considerable length by Monsieur Villey, and more tersely by Mr. Ritchie, who discusses the extent to which the limitations of the blind in this connexion affect character. These considerations have a most practical bearing on the education of the blind, in which Mr. Ritchie has himself been engaged for many years. His final chapter in his book should appeal to all who have to do with the blind in any capacity, even those who would use them as characters in fiction.

SLEEPING IN UNDERGROUND ROOMS.

THE use of underground rooms for sleeping purposes in London is subject to compliance with the provisions of the Public Health (London) Act, 1891, the Housing Act, 1925, and especially the regulations made by local authorities under the latter Act. In Holborn there recently has been occasion to consider questions relating to the construction of underground rooms. Plans for new buildings have to be submitted to the London County Council for approval under the London Building Act and to the local authority for approval so far as drainage work is concerned. For the latter purpose plans were submitted in connexion with a block of flats proposed to be constructed in the borough. The plans disclosed an intention to construct underground sleeping rooms. It appeared that the rooms if constructed as shown on the plans would not comply with the regulations, and use of these for sleeping would have called for action to prevent illegal occupation. It seems a weakness in public health law that no municipal authority has power to prevent the construction of underground rooms which would not be in compliance with the regulations when used as sleeping rooms. It is true that on occupation of the rooms the local authority could take steps to deal with the matter by way of closing order, but such a course in the case of newly erected dwellings would, to say the least of it, be inconvenient for the tenant who had moved in in all good faith, uneconomical for the owner who might be faced with the loss of rent or considerable outlay for reconstruction, and harsh on the part of the local authority making a closing order for part of newly erected premises. In the particular case in question after correspondence and interviews the plans were amended and the underground rooms brought into conformity with the requirements. The absence, however, of any statutory power to prevent such rooms being newly constructed led the borough housing committee to express the view that architects and others proposing to construct basement rooms in connexion with new buildings should be required to submit for the approval of the local authority complete plans with appropriate specification and a declaration that the underground rooms proposed to be built would comply with all enactments dealing with the use of basement rooms. If the construction of such rooms cannot be entirely prevented it is not unreasonable to seek powers to ensure that when completed they will comply with the minimum requirements for living purposes. The borough council agreed with the views expressed by their housing committee and adopted a resolution, copies of which were sent to the Minister of Health and to the larger borough councils asking them to take similar action. Up to the present replies have been received, we understand, from 31 authorities; 25 supported the Holborn resolution, 6 disagreed or decided to take no action.

THE SURGICAL TREATMENT OF HYPERINSULINISM.

HYPERINSULINISM is now recognised in America as a definite clinical entity, the antithesis to diabetes, as hyperthyroidism is to myxœdema, gigantism to pituitary ateliosis, and osteitis fibrosa diffusa to parathyroid tetany. Clinically the symptoms are those of an overdose of insulin, notably intense muscular weakness and exhaustion, which can only be controlled by repeated resort to carbohydrate food. In extreme cases there may be convulsive seizures and the patient may die in hypoglycæmic coma. In this country no such fatal cases of what may be termed idiopathic hypoglycæmia have so far been recorded; yet they must occur from time to time, and are probably erroneously regarded as epilepsy. Pathologically an adenomatous or carcinomatous hyperplasia of the islets of Langerhans is usually found, either in the form of a localised tumour, or more commonly diffused throughout the pancreas. The possibility of treating the condition by resection of portions of the pancreas has already been explored by American surgeons, and their results up to date have been reviewed by F. N. Allan, W. C. Boeck, and E. S. Judd.[1] In those cases in which the hyperplastic tissue is in the form of a localised tumour the operation is relatively simple, and in the only case of hyperinsulinism which has so far been completely cured by operation such a tumour was found and excised. The more common type of diffuse hyperplasia, however, is less easy to deal with, for, as in the surgical treatment of exophthalmic goitre, the operator can only guess how much tissue should be removed. If a comparatively small portion of pancreatic tissue is excised the patient's symptoms will not be relieved, while, on the other hand, too radical resection may cause diabetes. Up to the present the surgeon has erred on the side of conservatism and the results, from the point of view of the patient, have not been strikingly successful. The operative difficulties are considerable. It is necessary to remove the tail of the pancreas completely, since it contains the bulk of the islet tissue, and in this region hæmorrhage, especially from the splenic vessels, may be difficult

[1] Jour. Amer. Med. Assoc., April 12th, p. 1116.

to control; so much so that removal of spleen and pancreas en bloc has been advocated. In spite of these technical difficulties, however, partial resection of the pancreas can now be regarded as a relatively safe and simple operation, which is justified in those severe cases of hyperinsulinism which do not respond to dietetic treatment.

THE MARGATE PUBLIC HEALTH CONGRESS.

THE annual congress of the Royal Sanitary Institute will be held during the last week of June in Margate, under the presidency of Lord Cornwallis, Chairman of the Kent County Council. Among the subjects chosen for discussion are maternal mortality, the training of midwives, health visiting in rural areas, the health of industrial workers, food in relation to dental hygiene, the regional control of sewage works, and psittacosis. Dr. O. Charnock Bradley, Principal of the Royal (Dick) Veterinary College, Edinburgh, will lecture on Diseases of Domestic Animals from the Human Angle. Delegates are expected from South Australia, New South Wales, Victoria, Punjab, Bombay, Karachi, United Provinces (India), Capetown, Port Elizabeth, Pretoria, Lagos, Ontario, Nova Scotia, Singapore, Egypt, Denmark, Greece, Luxembourg, Mexico, Persia, Poland, and Bordeaux. A special feature this year is the visit of 200 representatives of the American Public Health Association. An exhibition of appliances for the promotion of public health and sanitation has been arranged; this will include infant and invalid foods, household and kitchen appliances, filters, water softeners, sewage disposal apparatus, refrigerators, gas stoves and fittings, stoves and ranges, disinfectants, soap, and sanitary appliances. Sir Andrew Balfour will preside over the section on Preventive Medicine; Sir John Moore over that on Veterinary Hygiene; Lady Howard de Walden over that on Maternity and Child Welfare and School Hygiene; and Miss Gertrude Tuckwell over that on Personal and Domestic Hygiene.

BROKEN HYPODERMIC NEEDLES.

DURING the past few years the London and Counties Medical Protection Society has had many applications from members for advice and assistance in cases of hypodermic needles breaking during the administration of local anæsthetics, and claims for damages for negligence are often subsequently made. In view of this the Council of the Society, after consulting with expert metallurgists, thinks it desirable that recommendations concerning the use of hypodermic needles should be circulated so as to lessen the incidence of this accident, or, should it occur, to give good ground for successfully contesting any claims arising therefrom. It is very difficult to detect a flaw (apart from too hard tempering) in any given needle, and in order to collect useful evidence on this matter the Society makes certain recommendations: A new needle should be used for every case. Needles should never be flamed in order to sterilise them, as the temper may be profoundly altered by this action and the needle rendered very brittle. Since needles nearly always break at the point of entry into the holder, a short holder should be used, so that if fracture should occur at this point a large portion of needle will remain in the tissues and so be the more readily found and removed. Needles should not be kept in watery sterilising solutions as, unless they are of stainless steel, they may be corroded and weakened, even though such damage may not be visible to the naked eye. When a needle does fracture the Society asks to be advised immediately whether a claim is made or not. In such cases the make of the needle should be given, and when possible both portions of the broken needle should be sent to the secretary of the Society. Any untoward experiences obtained in practice with any make of needle should be given. In the event of more than one breakage, not only should the two portions of the broken needles be forwarded, but also the remaining contents of that tube of needles. Owing to the difficulty of tempering so small an article as a carbon steel needle to the exact degree required, the Society considers that an unnecessary risk is being taken in using them. Better and more constant results are obtainable from needles made of alloy (such as stainless steel) which are, generally speaking, far more flexible than those made of carbon steel.

THE LATE MR. WHEATLEY.

Mr. John Wheatley, M.P., who died on Monday night, succeeded Mr. Neville Chamberlain as Minister of Health during the Labour Government of 1924. His tenure of office was perhaps too short to prove administrative ability, but it was long enough to justify an appointment which had caused anxiety. Both on the Glasgow Town Council and in the House of Commons Wheatley was known as an uncompromising advocate of Socialist experiment, and the Ministry of Health seemed to be fertile ground. But in treating the housing problem, with which his name was to be chiefly associated, he did not interfere with the plans which Mr. Chamberlain had made for helping private enterprise. The main object of his Housing Act was to supplement previous measures rather than supersede them, but with an enlarged subsidy to local authorities and private enterprise he hoped to provide 2,500,000 working-class houses within 15 years. No further opportunity of framing legislation was given him, for after leaving office he became increasingly critical of Mr. MacDonald's leadership and as an irreconcilable member of the left wing he could have no place in the present Government.

It will be recalled that on the formation of the Ministry of Health in 1920 Dr. Christopher Addison was the first to take office. He was followed, in 1921, by Sir Alfred Mond, who gave place, for a few months, to Sir Arthur Griffith-Boscawen. Early in 1923 Mr. Neville Chamberlain began the term of office which lasted—with Mr. Wheatley's intermission—until last summer. He was then succeeded by the present Minister, Mr. Arthur Greenwood.

BRITISH EMPIRE RED CROSS CONFERENCE.

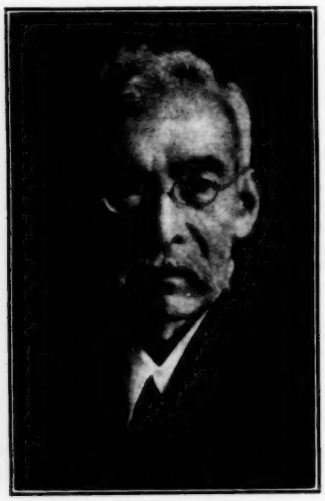
"To encourage and promote in every country in the world the establishment and development of a duly authorised voluntary national Red Cross Organisation, having as purposes the improvement of health, the prevention of disease, and the mitigation of suffering throughout the world, and to secure the coöperation of such organisations for these purposes."

The programme of the conference which opens in London on Monday next, May 19th, explains its purpose by the extract (printed above) from Article XXV. of the Covenant of the League of Nations. The first session will be held at St. James's Palace when the Duke of York will welcome the delegates, and addresses will be given (among others) by Lord Passfield, Sir Arthur Stanley, Dr. J. L. Biggar of the Canadian Red Cross Society, and Major-General Sir H. Symons, I.M.S., of the Indian Red Cross Society. On Monday evening a banquet will be given to the overseas delegates at the May Fair Hotel. On Tuesday morning the first plenary meeting will receive reports and nominate subcommittees, while in the afternoon addresses will be delivered on Methods and Opportunities of Red Cross Coöperation by Mr. Thomas Shaw, Secretary of State for War, Mr. Arthur Greenwood, Minister of Health, and others. On Wednesday H.M. the Queen will receive the delegates at Buckingham Palace in the morning and in the afternoon the conference will divide into subcommittees to discuss (1) Training and Organisation of Detachments; (2) Improvement of Health and Mitigation of Suffering; (3) Junior Red Cross; (4) General Red

Cross Organisation. On Thursday afternoon there will be a meeting of County Directors with Sir Arthur Stanley in the chair. On Friday the final plenary meeting will receive reports and adopt resolutions; to be followed by luncheon at the Mansion House and a reception at the College of Nursing. On Saturday afternoon Princess Mary will inspect detachments at Hatfield House. During the week will be thrown open to delegates such places of interest as the British Red Cross Clinic at Peto-place, the Star and Garter Home at Richmond, Surrey, the camp at Osborne, I.O.W. for women V.A.D. members, the Red Cross Hostel for International Students at 15, Manchester-square, and the Joint Red Cross Hospital Library at 48, Queen's-gardens, Lancaster Gate.

KATSUSABURO YAMAGIWA.

THE death of Prof. Yamagiwa, of Tokyo, removes a pioneer from the world of cancer research. Born in 1863, he studied medicine at Tokyo Imperial University, graduating in 1888. In 1891 he was appointed assistant professor of the University, but was given a Government grant for a period of study leave in Germany, where he stayed until 1894.



On his return he was promoted to a full professorship and assigned to the department of pathology and pathological anatomy. He held this post until his retirement in 1923, when the University made him Emeritus Professor. He was elected to the Imperial Academy in 1919, when he received the Academy prize. Yamagiwa made many important contributions to pathology, but the work which brought him world-wide fame was his demonstration in 1915 that in experimental animals cancer could be produced by the application of coal-tar to the skin over prolonged periods. This was no chance observation, but the outcome of long years of work devoted to surmounting the difficulties of proving that chronic irritation may cause cancer. Holding that continued traumas of various kinds capable of stimulating epithelial growth would lead eventually to the development of cancer, he realised the importance of Fibiger's demonstration, published in 1913, that cancer could be produced at will in the stomach of rats by feeding the animals with a certain worm (*gongylonema*). "Encouraged," Yamagiwa writes in the introduction, "by the glorious achievement of Fibiger"—and rarely has a scientific worker paid a more generous tribute to another—he began with Ichikawa a series of experiments in which they applied different traumas to the ear of rabbits. They succeeded eventually in producing cancer by long-continued painting with tar, and in this way inaugurated a new era in experimental cancer research. Prof. Yamagiwa founded in 1906 a journal devoted exclusively to cancer research, under the title of *Gann*. This periodical has since become the official organ of the Japanese Society of Cancer Research, whose president, Dr. Mataro Nagayo, contributes to the current issue a fine appreciation of the founder.

A COURSE IN ALLERGY.

A post-graduate course in allergic disorders will be held at the Pharmaco-therapeutic Institute at Leiden, from June 10th to 12th, when lectures and demonstrations will be given by Prof. W. Storm van Leeuwen, Prof. G. A. Rost of Freiburg i/Br., Dr. Dekker of Spa Wald, Rheinland, and J. van Niekerk, Conservator of the Institute. Lectures and demonstrations will be given in German, and will include the general conception of allergy, the significance of skin reactions, the preparation of extracts, the inspection of allergen-free installations in private houses, the relation of asthma to climate, the treatment of hay-fever and asthma in general practice, and the social significance of allergens in relation to the prevention of tuberculosis and asthma. The fee for the course is 30 marks, remitted to young assistants. Advice and information as to lodgings may be obtained from Frl. van der Waals, Pharmaco-therapeutic Institute, Leiden, Holland.

FRIDTJOF NANSEN.

IN an age of memorable exploits, the expeditions of Fridtjof Nansen in the Arctic have remained outstanding. But the life just ended was twice remarkable; for the far-sighted organiser of exploration was able to turn his gifts to the great advantage of European goodwill. His career was an unusual mixture of the scientific and the political. In 1887, just before his expedition across Greenland, he wrote a treatise on the Structure and Combination of the Histological Elements of the Central Nervous System. In 1906, after taking an active part in the separation of Norway from Sweden, he left the chair of Zoology at Christiania to serve as the first Norwegian Minister in London; and in 1919 he once again transferred his main attention from the problems of science to those of mankind. At this time the Council of Four were wondering how to deal with Soviet Russia, and Nansen proposed a scheme of famine relief which was accepted in principle but unfortunately abandoned. The League of Nations, however, entrusted him with the task of repatriating prisoners of war, and the success of this work led to his becoming High Commissioner for Refugees. As an internationalist he demanded more altruism from governments than they were capable of, but in the suspicious atmosphere of post-war Europe his labours for the settlement of refugees have had an important influence. This was appropriately recognised by the award of the Nobel Peace Prize in 1921, while his reputation in this country was reflected in his election, four years later, as Lord Rector of St. Andrew's University.

Mr. Thomas Peel Dunhill, assistant surgeon to St. Bartholomew's Hospital, has been appointed an honorary surgeon to the King in succession to the late Sir Alfred Fripp. Mr. Albert James Walton, surgeon to the London Hospital, has been appointed to take Mr. Dunhill's place as surgeon to His Majesty's household.

MATERNITY HOSPITALS.—In his report for 1929, Dr. W. H. F. Oxley, hon. visiting medical officer of the East End Maternity Hospital, Commercial-road, refers to the "serious diminution" in the number of out-patients, and explains it by the growing demand from women to have their babies in hospital. During the year 1920 patients were received into the institution or attended in their own homes.—Last year the Clapham Maternity Hospital, which is entirely under medical women, had what is stated to be the lowest mortality in England—one in 1275. There were 897 in-patients and 443 out-patients.—The annual report of the Jewish Maternity Home, in Underwood-street, Whitechapel, records the creation of a pathological laboratory for research into the causes and prevention of maternal mortality. There were 720 in-patients, and there was a considerable increase in the number of cases attended by the maternity nurses.

The Clinical Interpretation of Aids to Diagnosis.

A Series of Special Articles contributed by Invitation.

LXXII.—THE SIGNIFICANCE OF BLOOD CHOLESTEROL.

CHOLESTEROL exists in the body in two forms, as the so-called free form and also in combination with higher fatty acids as esters. These two forms are not equally distributed; in the brain and in the red blood corpuscles there is free cholesterol only, in bile the cholesterol is largely in the free form but in all other organs, including the blood plasma, the cholesterol is present in both forms, the ester generally in somewhat greater quantity than the free form. In blood the cholesterol content of the red blood corpuscles appears to be practically constant in both health and disease. For this reason it is essential that all estimations of blood cholesterol should be done on plasma (or serum) so that changes in the cholesterol level of the plasma should not be masked by the constant mass of corpuscular cholesterol, and also so that the interpretation of blood cholesterol values should not be complicated by the presence of anæmia.

Method of Estimation.

Cholesterol and its esters are insoluble in water and are carried in the plasma in close association with the proteins, particularly with the euglobulin. Even when hypercholesterolæmia is present the plasma is not necessarily opalescent. The method of estimation of cholesterol is of great importance. Methods which only determine the value of the total cholesterol of either plasma or whole blood are of very limited value. There are a variety of colorimetric methods of estimation in which both forms of cholesterol are determined, the main advantages of which are the ease and rapidity of performance and the small quantity of blood required. The alternative method of estimation is a gravimetric one, using digitonin. This method has a high degree of accuracy but is technically more difficult and requires 15–20 c.cm. of whole blood for each determination. Its reliability is accepted, whereas the colorimetric methods are apt to be vitiated by a variety of inaccuracies. Nevertheless, results of comparative value can be obtained, provided rigidly comparable conditions are adopted. In this article only those results will be discussed which have been verified by the digitonin method of analysis and which can be compared with the normal range of values determined by this method.

It is important to realise at the outset that in health the range of plasma cholesterol values is considerable. The following figures are the result of examination of about fifty normal individuals of both sexes. The figures represent grammes of cholesterol per 100 grammes of plasma.

Grammes of Cholesterol per 100 grammes of Plasma.

	Total cholesterol.		Free cholesterol.		Ester cholesterol.	
	Average.	Limits of variation.	Average.	Limits of variation.	Average.	Limits of variation.
M.	0·170	0·11–0·22	0·05	0·005–0·082	0·12	0·08–0·14
F.	0·153	0·08–0·23	0·054	0·02–0·094	0·10	0·054–0·14

M. = male; F. = female.

It will be seen at once how wide is the range of normal values, but in general the actual level of plasma cholesterol in a single individual is more constant. The ratio of ester cholesterol to total cholesterol in the plasma is in the majority of cases between 60 and 70 per cent. In normal individuals unexplained variations may occur in this ratio, but though very low values of free cholesterol may be observed, such low values have not been noted as regards the ester form.

Effect of Diet.

During health the level of the plasma cholesterol may be altered by feeding. As a result of a single meal, certain changes ensue which are not of the nature of an alimentary hypercholesterolæmia, as ordinarily understood, but which may consist sometimes in an increase, and sometimes a decrease, compared with fasting values and sometimes in a considerable alteration of the ester to total ratio, in either direction, apparently independent of the type of the meal. There is consequently no obvious relation between the amount of cholesterol ingested and the cholesterol level of the plasma during digestion, and the changes which occur in the plasma are considered as evidence of an active endogenous metabolism in which cholesterol takes a part. It follows that in studying the variations of plasma cholesterol in health it is necessary to take the blood with the patient in the fasting condition, as for example before breakfast. The level of the cholesterol content of the plasma, taken while fasting, can be raised or lowered by sufficiently prolonged feeding with diets of high or low cholesterol content. Such changes are most marked as regards the cholesterol in ester form; the free cholesterol remains practically constant.

Pregnancy.

Apart from the changes just mentioned, the only physiological condition in which the plasma cholesterol level is altered is in pregnancy. In this condition, from about the twentieth week, the free cholesterol increases to a maximum which it reaches about the thirtieth week and concurrently the ester cholesterol falls to a minimum. From this time the amount of free cholesterol decreases and the ester increases till an almost normal ratio of free and ester cholesterol is attained before or near parturition. The plasma cholesterol values generally become quite normal in the first or second week of the puerperium. A few cases only show such an increase of total cholesterol as may be considered hypercholesterolæmia, but the free cholesterol alone sometimes reaches a maximum of about 0·25 per cent. These changes form a very characteristic picture but so far they have not been explained.

Cholesterol Level in Certain Pathological Conditions.

At various times hyper- or hypo-cholesterolæmia has been stated to occur in a large variety of disease states, but in many cases the changes noted have been within the limits of normal variations. Hypocholesterolæmia does occur, at the height of the fever only, in a variety of febrile and infective conditions, but the clinical significance of this is not understood. In this connexion it might be noted here that the degree of hypocholesterolæmia found in cases of enlarged prostate with infection of the urinary tract has been suggested as a test of the operative risk of such cases, but the value of this has not been confirmed. True hypercholesterolæmia occurs in certain types of nephritis, hypothyroidism, biliary stasis, and diabetes.

Nephritis.—Hypercholesterolæmia is a frequent occurrence in nephritis and is present in all those cases which possess the "nephrotic" syndrome, marked by *diffuse* parenchymatous degeneration, heavy albuminuria, changes in the plasma proteins, and where œdema is the chief symptom. Consequently, increases of plasma cholesterol are found in those cases of acute nephritis of prolonged duration, where albuminuria is persistent and hæmaturia absent, and in all that group of chronic nephritis which includes, at one end of the scale, the so-called

pure "nephrosis" and, at the other end, cases of parenchymatous nephritis in which the initial "nephrosis" is more or less rapidly followed by sclerosis and contraction of the kidney. The hypercholesterolæmia may reach as much as 1·0 per cent. of total cholesterol in the plasma, and the ester to total ratio may assume abnormal values in either direction. The cholesterol increase is present throughout the course of these cases of nephritis so long as there is any *tendency* to œdema and it persists in cases of subacute parenchymatous nephritis for long periods even though, as frequently occurs, œdema is temporarily absent. In these cases recovery is rare and after a period of months or years, if infective conditions have not led to a fatal result, the tendency to œdema is replaced by the tendency to vascular changes, increase of blood pressure, and signs of nitrogen retention, and at about the same time the hypercholesterolæmia diminishes. To use, for simplicity, an old terminology, when a large white kidney contracts to a small white kidney the plasma cholesterol becomes normal, but in these cases there may be some overlapping of the characteristics of the two stages and hypercholesterolæmia may still be present when the vascular changes and threatening uræmia herald the termination of the disease. Estimation of plasma cholesterol aids diagnosis in those cases of contracted kidney where no history can be obtained of the previously occurring stages, for if hypercholesterolæmia is found the renal lesion must be a sclerosis secondary to a diffuse nephritis, which was not recognised because the sum of the factors which usually produces the œdema in these cases had not reached a sufficient value. Hypercholesterolæmia is not found in cases of interstitial nephritis or in arterio-sclerotic kidney, or in arterio-sclerosis. The presence of hypercholesterolæmia generally signifies a grave prognosis. The cause of the hypercholesterolæmia is not known, but is possibly related to the disturbance of the plasma proteins which results from the proteinuria. The kidney does excrete traces of cholesterol in the urine, but even in "nephrosis," where the excretion is much increased, the amount does not exceed 40 to 50 mg. per day.

Myxœdema.—The total cholesterol of the plasma in this condition may be increased by nearly 50 per cent. over normal values, and after administration of thyroid gland the values generally become normal. Epstein and Lande thought that blood cholesterol was inversely proportional to the basal metabolic rate and they found an analogy between myxœdema and pure "nephrosis," where the basal metabolic rate is also below normal; this argument was then used to explain the occasional beneficial results of thyroid medication in "nephrosis." However, this relationship of basal metabolic rate and blood cholesterol does not exist in states of hyperthyroidism where, as in exophthalmic goitre, the blood cholesterol is within normal limits.

Biliary Stasis.—Hypercholesterolæmia has been stated to occur in cholelithiasis and in affections of the liver, but there can be little doubt that in all the earlier investigations the hypercholesterolæmia noted was due to the biliary stasis and not to the pathological condition which preceded this. Hypercholesterolæmia is not a feature of uncomplicated cholelithiasis. When, however, biliary stasis occurs, as for examples from impaction of a stone in the common bile-duct or from catarrhal jaundice, the blood picture shows interesting changes. In the early stages the cholesterol ester rapidly diminishes and may almost disappear from the blood plasma, while the free cholesterol may remain normal or show slight increase. This characteristic change in the plasma cholesterol can also be observed in those cases of cholecystostomy where none of the bile is reaching the intestine. This change consequently must be due to the disturbance of fat and cholesterol absorption from the intestine which results from the absence of the bile. If *complete* biliary obstruction persists for many weeks then the plasma cholesterol steadily increases as regards both forms till marked hypercholesterolæmia occurs, but the ester to total ratio remains low, averaging 30 to 40 per cent. If the biliary obstruction is not quite complete or is intermittent the hypercholesterolæmia does not appear. It is usually considered that the increase of plasma cholesterol is due to the retention of biliary cholesterol, but this explanation is by no means satisfactory. To explain this hypercholesterolæmia no hypothesis would be acceptable which ignored the very close chemical relationship of the bile acids and cholesterol.

Diabetes.—True hypercholesterolæmia occasionally occurs in severe cases of diabetes. It is stated that plasma cholesterol determinations are of value in diabetes as an index of prognosis, and that if the hypercholesterolæmia persists despite insulin treatment the prognosis tends to be more serious in the sense that treatment is more difficult. The increase of plasma cholesterol in diabetes mellitus is possibly due to the disturbance of fat metabolism and transport. Hypercholesterolæmia in diabetes (and also in biliary obstruction) may lead to deposition of cholesterol in the skin as xanthoma.

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Public Health Services.

NATIONAL HEALTH INSURANCE IN SCOTLAND.

THE serious effect of the present industrial depression in health insurance finance is the subject of comment in the first annual report just issued (Cmd. 3529) of the Scottish Department of Health. In 1929 the numbers insured under the Unemployment Insurance Acts had only increased by 0·16 per cent. over those in 1927, contrasting with an increase of 4·76 per cent. in the Midlands and North of England. Reduction in the iron and steel, and coal-mining industries was mainly due to migration, but lack of new entrants was an increasing factor. Juvenile unemployment was rife. Of the 1,837,000 members of approved societies in Scotland, 43 per cent. were insured in industrial assurance companies, 48 per cent. in friendly societies, and only 7·4 per cent in trade-union societies. The total membership of the new insurance section among deposit contributors was only 341.

The work of departmental inspectors continues to increase. Establishments visited numbered 25,644, and arrears collected amounted to £11,951 for health insurance and £12,836 for unemployment insurance. A feature of contribution irregularity in recent years has been the prevalence of illegal use of stamps. Prosecutions for this class of offence resulted in 25 convictions, with fines amounting in all to £158, and one term of six months' imprisonment. The judicial decision of questions of employment under the Act has often proved difficult. Of 70 cases submitted during the year, no fewer than 37 were pension cases in relation to past employment. Many cases turned on the question of an existing contract of service. Sixty-four disputes between societies and their members were referred to the Department: 22 were decided in favour of the member, 21 in favour of the society, and ten were withdrawn.

About 2000 practitioners and 1400 chemists are under contract with insurance committees. During the year there were 21 complaints against practitioners but no question arose of the removal of a doctor or chemist from the panel lists. The Department had to deal with seven appeals only against decisions of insurance committees in complaints against doctors and chemists. The complaints against chemists arose out of the operation of the drug-testing schemes.

During 1929, 598 samples were tested, 49 were reported to committees, and a censure or fine was imposed in 16 cases. Surcharges amounting to £209 were made against practitioners for excessive prescribing.

The cost of insurance committees was £50,068; medical benefit cost £792,000; the mileage fund was £42,500, and special grants to necessitous areas and for post-graduate work amounted to £3110. A great effort is being made in Scotland to bring the regional medical officers of the Department into closer relationship with the practitioners. Both for purposes of second opinion and help in diagnosis, and for advice on questions of certification, these consultations are being encouraged. The state of the Drug Fund, which is estimated as amounting to 23·8*d.* per insured person, has shown the need for constant supervision of prescribing. Insulin was supplied to 1115 persons, and its cost amounts to about 4 per cent. of the Drug Fund.

The new Local Government Act is expected to increase the hospital provision for insured persons. The figures given for expenditure in benefits show that the combined cost of sickness and disablement benefits has risen in all classes. The increase in expenditure in 1929, with that in 1928, amounting to £200,000, is entirely due to an increase in sickness benefit. The influenza epidemic in the early months of 1929 accounts for some of this, but a considerable proportion of the increase remains unexplained. The questions of medical certification and claims supervision have been considered, and various suggestions are made for stricter supervision and control. During the year 44,941 persons were referred to the regional medical staff, an increase of 6621 cases over 1928. A scheme has been set up in certain areas whereby the advice of the regional staff may be sought by practitioners in the cases of certification difficulties. In the cases referred the practitioner's opinion was upheld in 37 and reversed in 18 per cent.

Additional benefits have been provided by certain societies, but the value and extent of these benefits have been curtailed by lack of funds. For hospital treatment the Department decided that the societies could make a contribution towards the cost incurred by the member, and regulations have been issued fixing the maximum contribution for 1930 at 2*d.* per member. The third valuation of the funds of approved societies operating in Scotland showed results generally satisfactory but not uniformly so. The financial position of certain societies had deteriorated seriously during the valuation period. The continued rise in expenditure makes the future outlook both uncertain and anxious.

On the whole the report reveals the same tendencies as are shown in the Government Actuary's report in England, but industrial depression appears to have been a larger factor in Scotland. Elimination of undue claims is regarded as vitally important in the interests of the general body of insured persons.

SCHOOL MEDICAL SERVICE.

—	No. on roll.	Average attendance.	Routine inspection.	Special re-inspection.	Per cent. of defects.
County of Brecon..	9076	8128·5	3037	1400	14·8
Colchester..	5757	88%	1778	3115	20·9
Eccles ..	—	—	2127	3725	24·59

County of Brecon.

Dr. Herbert Davies agrees with Sir George Newman that the purpose of preventive medicine "is indeed to strengthen and protect the weak, but also to make the strong stronger." To this end parent and teacher must join in coöperation with doctor and nurse. Dr. Davies reviews the hygienic conditions of schools in the county, important for their direct influence on the health of the children and the efficiency of instruction, still more as a means of training young minds to appreciate the value of sunlight, fresh air, and cleanliness. He classifies the schools as: (*a*) single roomed; (*b*) grouped rooms intercommunicating; (*c*) central hall with rooms grouped around; (*d*) corridor type. Lighting is a vital matter; the importance, he says, of securing sunlight in classrooms cannot be overestimated. In this respect a number of schools are deficient, especially in type C which results in schoolrooms being placed with wrong aspects. The problem of heating is closely associated with that of ventilation; unless the heating surface is of ample capacity a sufficiently frequent change of air, he remarks, cannot be undertaken. Arrangements are being made for the drying of children's clothes, a real need in scattered rural areas. Ventilation is often unsatisfactory. In the A type much of the air comes through the cloakrooms which serve as lobbies, passing over masses of damp clothing. In types B and C the vitiated air tends to move from room to room instead of being cleared right away. The practice of flushing rooms with fresh air during recreation is fortunately becoming more universal in the county. Dr. Davies remarks on the difficulty of keeping rooms clean is increased by their being filled with heavy furniture; great improvement has followed the replacement of heavy desks by folding chairs and tables, and he recommends the provision of store rooms so that all furniture not in use at the moment can be removed. Dirt and mud from the playgrounds soon clog the mats so as to be useless; at least a pathway in the playgrounds should be paved and foot scrapers provided at the entrance. Dr. Winifred Probert assists him in the general work and treats visual defects.

Colchester.

Dr. W. F. Corfield mentions Circular No. 1054 of the Ministry of Health, unusual in bearing also the signature of the Board of Education, which dealt with the pre-school child, indicating the gap between the activities of the infant welfare schemes and those of the school medical service. The orthopædic clinic in the borough has brought to light a number of cases of slight rickets in these children, and the health nurse is being encouraged to follow up children of from 2 to 4 years of age. With a second nurse whose appointment is in prospect, it should be possible for every child to be regularly visited at least every three months until 5 years of age, or until it attends school. But much further help would be given by the establishment of nursery schools or creches; distance from home and danger of infection are objections which do not apply to such poor and densely populated districts. The liability to infection is no greater than in the streets and if an epidemic appears the centre can be closed for a while; the advantages are that the children can be taught order and cleanliness, their lives are made brighter, and defects are far more easily detected. Special arrangements are now made for orthopædic treatment of these children; there were as many pre-school children as scholars at this clinic. Similar arrangements are made for their dental care. Coördination is so close that the health visitors, who are also school nurses, in one house may have an infant and a school child to deal with, in another a child of 4 who attends school, and in a third a child of the same age who is still attending the infant welfare centre of the health authority. When pre-school children are taken under the official wing will it be as school-children or as infants? Dr. Corfield's view is that the time is ripe for a full reconsideration of the care of children from birth (or before) to 15 years of age, and he thinks that one responsible authority would make for unity and simplicity. In dental work, a step forward is the appointment of a full-time dentist, who devotes one session a week to infant welfare work; he is to be assisted by an extra nurse. Coöperation of the parents is good, their attendances reaching 80 per cent.; Dr. Corfield thinks they appreciate what is done and would not subscribe to the loose statement sometimes made that "anyone can do school medical

inspection work." In the list of schools with cases of pediculosis there are four this year with a record of nil. Comparison may seem invidious and a percentage of 15·8 at the special M.D. has an obvious reason; but there are schools in so-called better districts which have not so good a record and it does no harm to set them thinking.

Eccles.

Dr. J. E. Spence's authority has, he says, always been alive to the necessity for continuing the care and supervision which is exercised over the welfare of infants until they are admitted into public elementary schools and pass under the supervision of the school medical service. The services have been unified by the appointment of a joint sub committee for the consideration of all matters common to infant and school welfare, and of a common staff to supervise children from birth to school-leaving age. Combination of infant welfare work and school visiting has, it appears, increased the attention paid by the parents to the nurses' advice. Inspections have revealed a considerable rise in the percentage of defects, especially of tonsils and adenoids, nasal catarrh, and anæmia, all of which are largely accounted for by the severe climatic conditions of the year. These defects and those of the ear, says Dr. Spence, have their origin in the common cold, which is spread by lack of care and precaution on the part of those suffering from acute catarrhal conditions, the anæmia being perhaps a result of recurrent catarrh. The borough is proud of possessing an open-air school where excellent results are obtained. Special attention is paid to the dietary and it is found that many of the children put on weight during the week at school, which they lose over the week-end at home. Enterprise is shown in the organization of a class for stammerers; several children relapsed to some extent on leaving school when they discontinued their vocal exercises but others derived permanent benefit. The number of children suffering from deformities is very low; no "cripple" is attending an elementary school. In the present year arrangements will, it is hoped, be made for children with deformities to attend the county clinic in Irlam, in-patient treatment being provided at the Biddulph or Ancoats Hospitals. All notified cases of tuberculosis have been kept under observation at the county dispensary. The dental clinic has completed ten years of service; the percentage of those requiring treatment has fallen from 76·4 in 1920 to 69·7 in 1929, part of the decrease being attributed to the treatment given to pre-school children. Refusals of treatment have fallen from 42·1 per cent. in 1920 to 19·7 in 1929. Many parents when refusing treatment say they will obtain it privately, but this, Mr. Broughton remarks, is simply an artifice, for if any treatment is thus sought it is merely the extraction of acutely painful teeth. In only 5 per cent. of such cases had the private dentist been permitted to carry out complete treatment, and in 26 per cent. no treatment whatever had been obtained.

PORT SANITARY AUTHORITIES.

Hull and Goole.

Dr. W. R. Frazer, in his first report to the port sanitary authority, states that 7980 ships arrived in his area during the year 1929, and of these 532 required inspection by a medical officer. No case of plague, cholera, yellow fever, or typhus was seen. A municipal aerodrome was opened during the year by H.R.H. Prince George near the docks. The water-supply of ships is from local water-works through hydrants or water boats of which there are 13, frequently inspected; 59 vessels arriving had water tanks that needed cleaning; two samples of water were contaminated with the colon bacillus. No record, it seems, is kept in ships of the origin of the water in the tanks on board. An Italian ship, *Tirreno*, carrying grain from Rosario, crew all well, and no dead rats reported, last fumigated 13 months previously, began discharge of cargo when two rats dead with plague were found. Discharge of cargo was stopped; the ship and the lighters to which cargo had been discharged were fumigated with hydrocyanic acid before discharge was resumed. In all 268 rats were found, six of them plague infected. The empty ship was again disinfected, when only three more rats were found. No case of plague occurred among the rats on shore nor among the many men who were dealing with the cargo. During the year altogether 8203 rats were killed in the port or on ships; the number has been continuously falling for five years. Of the 706 bacteriologically examined, only the six mentioned were found plague infected. On ships arriving 53 cases of venereal disease came to notice; all were told of the clinic, but 24 did not attend. Much attention was paid to sanitary defects on board ships; 7248 were examined and 1293 had defects, of which the chief were unventilated food lockers, many of them not in mess rooms, but in sleeping quarters; lighting required improvement in 52 cases; 388 closets had no flushing facilities (one ship had no w.c. for the use of the crew); unpainted granulated cork instead of wood sheathing is recommended over iron to prevent sweating and damp. Verminous conditions of bunks in crew spaces caused complaint on 150 occasions. Attention is drawn to nuisance arising from kitchen refuse accumulating on deck in dock. Of 3894 complaints, 2392 were remedied before the ships left. Among the 7133 aliens who arrived, the standard of cleanliness of transmigrants was found to be high; 45 certificates in respect of favus, trachoma, and the like were given. Fruit 171 tons, shell-fish 3 tons, bacon half a ton, were condemned as unsound. Of the 1196 canal boats, 284 had sanitary defects, and of these 261 were remedied; women and children were found on board chiefly during the school holidays.

Bristol.

Dr. R. A. Askins reports that 171 incoming ships were examined by the medical officer, 2478 by inspectors. As regards hygiene of crew spaces, 318 ships had defects, remedied in 316 (no details are given). No cases of plague, cholera, yellow fever, small-pox, or typhus appeared, but three cases of climatic bubo caused anxiety. Deratisation of 21 ships was done by sulphur, one by cyanide fumigation; of the 5727 rats destroyed 1705 were black, 2432 brown, 1590 (including 13 mice) undifferentiated. None was found plague infected. The total was twice as great in 1925. In one sailing ship with grain from Australia 21 rats were caught, and 42 more were killed by sulphur fumigation. Rat harbourage is being restricted on ships and about the docks, the more effectively since the rat-catching staffs of port and city are now unified. The venereal clinic treated 125 venereal cases with 442 attendances; 30 cases were notified from incoming ships. Grain dermatitis was brought in by a ship from Morocco; local practitioners were notified by circular. Little bad food arrives in Bristol; one side of bacon was condemned as tuberculous. Reports on seven suspicious ships' water-supplies are detailed, but not the authority's action. Water is supplied mainly from hydrants, one water boat being used in the docks.

Liverpool.

Dr. A. A. Mussen mentions 5174 visits of inspection paid to incoming ships, of which 734 (last year 933) had defects on board; there were 2670 (3131) dirty forecastles, and 277 (363) foul w.c.s, so improvement goes on. There are no water-boats in the port, supply of water to ships being from hydrants alone. Of enteric fever, six cases were landed, and of tuberculosis, 62; fewer than usual. There were no cases of cholera, plague, or yellow fever; no plague rats were found among the 4679 examined. The severe type of small-pox gave trouble with the arrival of the Anchor Line steamer *Tuscania*, of which the main facts may be briefly recapitulated. The ship left Bombay on March 14th, and passed Suez on the 22nd. On the 17th a seaman complained, and developed a

rash on face, back, and forearms, which was diagnosed as toxic erythema at Marseilles on the 27th, where he was landed and died in hospital, the diagnosis then being changed to hæmorrhagic small-pox. The 450 passengers who landed at Marseilles were notified to the medical officers of health to whose districts they were travelling, and the ship was informed, when the crew and passengers, 900 in all, were vaccinated. On March 18th a greaser had reported sick, and on the 20th developed a rash on the face and elsewhere; this was diagnosed as chicken-pox on the 22nd with the concurrence of the quarantine medical officer at Suez; nothing is said about him at Marseilles, but at Liverpool on April 1st he was removed from the ship with small-pox. The ship reached Glasgow on April 4th, 15 days from the appearance of the first rash, when further cases of small-pox were discovered. Of the total 53 cases reported, two were these early cases, 45 were contracted on board, and there were six later infections. Twelve cases were fatal. Another ship, the *Appam*, had a case of small-pox at Calabar, which was recognised at once, landed, and properly controlled, with the result that there were no other cases. Much attention was given at Liverpool to the destruction of rats on ships as well as in the port and city. In 1929, 22,369 rats were caught or killed on ships (29,189 in 1928), 1405 about the port (2250), in the city 16,398 (16,664), in all 40,172 (48,103); the figures suggest that the anti-rat campaign is achieving something. To kill cockroaches, it seems, requires a higher concentration of hydrocyanic acid than to kill rats. Estimating the number of rats on a ship by inspection is a skilled employment, requiring training and constant practice, but it can be done pretty accurately; in a group of ships in which over 500 rats were expected, 600 were found. Seamen account for half the new cases of venereal disease in Liverpool, and half the total attendances at clinics; at the Seamen's Dispensary there are in proportion more cases of soft chancre and fewer of syphilis than in the city. Electrical treatment (not particularised) has shortened the period of gonorrhœal cases. Lectures on venereal diseases have been well attended and appreciated. Of anthrax, nine cases were notified, with three deaths; two cases were connected with South American hides, three with East Indian wool, and four from tanneries at Runcorn. Cases are to be sent direct to Fazakerley hospital for early serum treatment. Disinfection of the raw material is carried out at the Government Wool Disinfecting Station; a model of the plant in use there may be seen at the Home Office Industrial Museum in Horseferry-road, London. Many shipping companies now fumigate crew's quarters after every voyage to get rid of vermin. Less unsound meat is being received at Liverpool; 1804 (1967 in 1928) tons were "utilised under supervision," including 127 tons of mutton, largely condemned on account of epizootic lymphangitis. Inspection is being improved in the countries of origin. Meat from Waterford and Cork has also had to be seized, but a certain amount of inspection is now carried out by the Irish authorities. More care has been given this year by countries abroad to packing of fruit.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED MAY 3RD, 1930.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox 306 (last week 353), scarlet fever 1829, diphtheria 1198, enteric fever 87, pneumonia 1054, puerperal fever 45, puerperal pyrexia 112, cerebro-spinal fever 19, acute poliomyelitis 5, acute polio-encephalitis 1, encephalitis lethargica 18, continued fever 1, dysentery 3, ophthalmia neonatorum 136. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the Metropolitan Asylums Board on May 6th–7th was as follows: Small-pox, 548 under treatment, 33 under observation (last week 483 and 31 respectively); scarlet fever, 2039; diphtheria, 2541; enteric fever, 33; measles, 1025; whooping-cough, 64; puerperal fever, 28 (plus 16 babies); encephalitis lethargica, 119; poliomyelitis, 1; "other diseases," 19. At St. Margaret's Hospital there were 18 babies (plus 7 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 3 (0) from enteric fever, 112 (53) from measles, 7 (0) from scarlet fever, 28 (2) from whooping-cough, 42 (13) from diphtheria, 50 (8) from diarrhœa and enteritis under two years, and 40 (5) from influenza. The figures in parentheses are those for London itself.

The three deaths from enteric fever outside London were reported from Southport, Burnley, and Sunderland. Fatal cases of measles were widely distributed with larger numbers at Liverpool and Salford each 6, Middlesbrough 4. Three deaths from whooping-cough were reported from each of Birmingham, Liverpool, Bradford, and Middlesbrough. Rhondda reported 4 fatal cases of diphtheria, Liverpool 3. Diarrhœa was credited with 8 deaths at Liverpool, 4 at Manchester. No great town attributed more than 2 deaths to influenza.

The number of stillbirths notified during the week was 321 (corresponding to a rate of 40 per 1000 births), including 70 in London.

Special Articles.

MEDICINE AND THE LAW.

Hospitals and Rates: the Basis of Assessment.

WHAT may prove an important test case on the rating of hospitals was heard on May 6th before the County Assessment Appeal Committee of Hertfordshire. The local rating authority, the Barnet Urban District Council, appealed against the Barnet and District Assessment Committee and the Barnet Victoria Cottage Hospital on the point whether the hospital should be assessed at £80 a year (the figure recently fixed by the local assessment committee) or at the former figure of £250. A brief report in the *Times* indicates that the appellants contended that the value of the hospital was £14,000 and that, if a new hospital had to be built to take its place, the cost would be £20,000. The assessment, it was stated, had been £250 for the past five years, but, recently, all the Hertfordshire hospitals had been assessed on a basis of between 30*s.* and £2 per bed; the Barnet Hospital having 40 beds, the assessment had thus been reduced to £80. The chairman of the tribunal announced that the Appeal Committee did not accept the view that hospitals should be assessed on the basis of so much per bed; the proper basis was the rent which a hypothetical tenant would pay for the property. The figure, said the chairman, must necessarily be low in the case of a hospital; though not accepting the basis of assessment, the Appeal Committee accepted the figure of £80 as reasonable and proper. The appeal was therefore dismissed, the hospital being allowed costs but the other respondents (the Barnet and District Assessment Committee) being directed to pay their own costs. The unsuccessful appellants asked the tribunal to state a case for the High Court.

It is interesting to observe that the basis of assessment by the number of beds was rejected. This basis has furnished a convenient method for calculating hospital expenses and for classifying the size of an institution. A low assessment is of vital importance for hospitals, and, as Parliament declined to exempt them from the burden of rates, it has been essential for them to succeed in avoiding heavy assessments at the hands of the local assessment committees. What the case fails to reveal is the reasons which have prompted the local rating authority to undertake the ungenerous task of attacking the cottage

hospital and to seek to overthrow the arrangement reached throughout the county for hospital assessment.

Guaranteed Cures and Fraud.

Two men, described as manipulative masseurs, were recently found guilty at Nottingham Quarter Sessions of obtaining money by false pretences and of conspiracy to defraud. They were said to have undertaken to cure, by means of massage and by the use of an oil which they sold, cases pronounced incurable by doctors. The accused protested that they had not guaranteed cures. The Recorder, in passing sentence, said it was difficult to see any extenuating circumstance; they had been found guilty of heartless and cruel conduct. The elder of the two men was sentenced to 12 months hard labour in respect of the false pretences and 15 months in respect of the conspiracy, the sentences to run concurrently; the younger was sentenced to 9 and 12 months imprisonment in the same way. They were also ordered to pay £250 towards the cost of the prosecution.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Proprietary Preparations in Prescriptions.

OWING to competition between manufacturing chemists the number of proprietary preparations has greatly increased. This increase is detrimental to the pharmacists, because in recent years their profit on the sale of such preparations is considerably less than that accruing from making up prescriptions. The Hungarian Pharmaceutical Law allows for a good fee for preparing mixtures according to prescriptions, but allows only 30 per cent. profit on the sale of proprietary drugs. The widespread use of these, moreover, does not do the doctors much good, since patients are apt to try to treat themselves. It is not uncommon, in the present depressed financial state of the people here, for patients suffering from grave heart trouble to omit to call in a doctor because they have been advised by friends to buy a bottle of some preparation which was prescribed for a relative suffering from heart disease. The fact that large advertisements appear in the daily papers detailing the indications for the administration of this or that patent remedy is an additional reason why these are to be found in almost every household. The National Pharmaceutical Association has now circularised every doctor, pointing out the harm that proprietary medicines can do when they get into the hands of laymen. The pharmacists, it is said, have been brought to the verge of bankruptcy, and are forced to take collective action. They have no quarrel with sound preparations which are the products of scientific research, but deprecate the use in prescriptions of drugs which are merely mixtures which could equally well be prescribed separately. They request the medical profession to abstain, in the future, from prescribing proprietary drugs when they can get the same mixture made up by the pharmacist. When it is necessary to prescribe special preparations the wrappers and the enclosed literature should be removed, so that the patient will not be led to believe that the medicine is a sure remedy of all the diseases which are enumerated, and will seek advice from the proper quarters.

A Clinic for Civil Servants.

Some weeks ago Mr. A. Wekerle, Minister of Finance announced in the Houses of Parliament his intention to establish a sanatorium in the vicinity of the University Clinics for civil servants. He wishes to solve the problem of medical attendance for these officials by enlisting the service, gratuitous, or at nominal salaries, of the doctors of the neighbouring clinics. This scheme naturally provoked indignation among doctors, and the president of a Budapest medical corporation, Dr. Rosenak, voiced their protest. The medical profession, he said, is well aware of the financial position of civil servants, and their claim to reduced medical fees has always been met. Not only do doctors attend them for minimal fees, but in cases necessitating exact investigations also the public hospitals are at their disposal. The Budapest Medical Corporation has resolved to apply to the Hungarian Medical Association to do everything in its power to prevent the erection of the proposed clinic.

Protective Immunisations against Diphtheria.

A well-elaborated report on prophylaxis against diphtheria was recently contributed by B. Johan and J. Tomcsik to the Medical Society. They said that the rate of morbidity in Hungary was fairly high. Although the statistical data available were not quite reliable, still some conclusions might be drawn from them. One of the tasks of public health authorities was to cope with carriers. A very extensive search for carriers had been made in Szolnok county, but their isolation did not appear to have had much influence on the rate of morbidity in 1928. That schools are of very great importance in the spread of epidemics is best shown by the fact that during epidemics a diminution in incidence tends to follow the closing of schools. Among the substances recommended for use in active immunisation against diphtheria, the T.A.F. preparation of the German Behringwerke, and the protective ointment of Loewenstein, of Vienna, have been tried in Hungary, but the Ramon anatoxin has been more widely used than either. Most of the anatoxin immunisations have been made with the inoculation material prepared in the National Public Health Institution, where, with a slightly altered technique, some highly efficient immunising serum has been produced. Up to the end of 1929 more than 20,000 children had been inoculated, and in January of this year a further 25,000 children were immunised. No severe reactions, lasting over one week, were encountered. In children ranging in age from one to five no inoculation reaction was observed, and fever was rare. In older children moderate fever, lasting for two or three days, occurred, and in adolescents high fever, but no disquieting symptoms made their appearance. After the second inoculation more local and general reaction occurred than after the first one, while the third inoculation was followed by less reaction. The immunising value of the inoculating material was controlled in a few cases by the Schick reaction. The results of protective immunisation are estimated from the morbidity-rate. About ten months ago in Szolnok county 10,181 children were given protective immunisation. Out of these, up to now, only four have been attacked, with very mild infections. Among a corresponding group of non-immunised children during the same period 248 fell ill with diphtheria. Although the immunisations were made at the season when the incidence of diphtheria is at its height, the number of cases occurring after the first immunisation did not confirm the belief that the first inoculation may produce a rise of susceptibility of short duration (negative phase).

Artificial Abortion on Sociological Grounds.

Owing to the critical economic conditions prevailing in Hungary, the number of artificial abortions is on the increase. The Government has found it desirable to take up the matter, and the medical profession has been warned to interfere only in the most urgent cases. Lectures designed to enlighten the public on the dangers of procuring abortion are being held. Dr. Lajos Göczy, lecturer to the University of Budapest, has raised the question whether any social indications for abortion exist. From the individual point of view, he argues, an obvious indication is the danger of aggravating previously existing diseases by pregnancy or by labour at full term. Even here, however, economic considerations

cannot be ignored, since, for example, patients suffering from tuberculosis or heart disease may not be able to afford prolonged sanatorium treatment or that extra care which will spare effort during childbirth. In such cases the interruption of gestation is recommended after consideration not only of the disease but also of the social conditions of the patient. Certain authorities go still further, and are prepared to admit the principle that abortion may be induced for such reasons as the decreased earning power of the pregnant women, or the fact that the critical financial state of the family does not justify the expense of bringing up and educating more children. According to this school, so long as the State is not in a position to prevent the social evils brought about by large families among the poor, the only escape from the dilemma is artificial abortion performed on social grounds.

Dr. Göczy pointed out, however, that it is not the doctor's business to ascertain the economic position of his patients and that he might be misled by false statements or gross exaggerations, and thus connive at unnecessary abortions. Moreover, even if the investigation were to be done by some competent authority deputed by the State, the performance of artificial abortion for sociological reasons would still be outside the province of a doctor, whose task is to protect pregnancy and not to interrupt healthy gestation. If he allowed himself to be placed in a position of producing abortion on demand, the authority, not only of the individual doctor, but that of the whole medical profession, would be undermined. On these grounds Dr. Göczy would deplore the acceptance of any indications for abortion other than medical ones.

Mushroom Poisoning.

The Mushroom Section of the Royal Hungarian Plant Life and Pathological Station has issued a questionaire to all doctors practising in Hungary, asking for information, from records or from memory, of any cases of mushroom poisoning which they have come across during the last ten years. The most important data required are the names of the patients and the kind of mushroom with which they were poisoned; also the way in which the mushrooms were prepared for consumption. In Hungary there are some species of fungi which, stewed in an unenamelled iron pan, are very poisonous, while if they are cooked in the form of soup they are much less harmful, causing only slight indigestion and nausea.

A Congress on Diseases of Digestion.

The German Society for Diseases of Digestion and Metabolism will hold its tenth meeting at the Medical Clinic of the Budapest University, under the presidency of Baron Alexander Korányi, from Oct. 6th–8th. The chief subjects for discussion are as follows: Changes in Form and Posture of the Digestive Organs, with Special Reference to Ptosis and Diverticula (Prof. Vogt of Munich, Prof. Bergmann and Prof. H. H. Berg, of Berlin, and Prof. Verebélyi, of Budapest); The Organisation of the Dietetic Kitchens of the Budapest Clinics (Dr. Soós, of Budapest); Diseases of Bones in their Relation to Calcium Metabolism, Internal Secretion, and the Vitamins (Dr. Fürth, of Vienna, Dr. Pick, of Berlin, Dr. Alwens, of Frankfurt, and Dr. Wieland, of Basle; The Ætiological Problems of Inflammatory Diseases of the Digestive Organs (Dr. Kuttner, Dr. Löwenberg, and Dr. Kaufmann of Berlin, and Dr. Löhr of Kiel). In connexion with the meeting there, an exhibition of pharmaceutical preparations will be held.

A MILLION FROM A CONTRIBUTORY SCHEME.—At the annual meeting of Sheffield Royal Infirmary recently it was stated that by the end of the present year the Sheffield hospitals would have received a million sterling from the penny-in-the-pound scheme since its creation. The average cost per bed has been reduced from £134 to £125. Last year there were 5000 in-patients, 38,242 out-patients, an increase of about 5500, and 22,295 casualties.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

Social Hygiene in New York.

THE New York State Department of Health founded its division of Social Hygiene in 1918. During that year lectures were delivered to audiences aggregating 2200. Since then the yearly attendance has varied between 50,000 and 125,000 persons. By the middle of January of the present year the total attendance for 12 years had passed the million mark, rather more than half of the audiences being men. As many educators and civic leaders have been included in these audiences it is believed that the essential instruction must have penetrated to all people in the State. An important research is to be published shortly as Reprint No. 1365 of the Public Health Reports. It comprises the results of a joint undertaking by the American Social Hygiene Association, the New York Tuberculosis and Health Association, the Welfare Council of New York City, and the U.S. Public Health Service. The report is the result indirectly of international conferences on health and welfare of seamen and is entitled "Seamen with Venereal Disease in the Port of New York." Of the 961 men studied 840, or 87 per cent., were single and of the remainder only 67 were living with their wives, while 30 were divorced and 23 widowers. In religion, 440 were Protestants, 386 Roman Catholics, 46 had no religion, and only 18 were Jews. The proportionate representation of the religions among seamen generally is not stated. The effects of penalties and of charging for treatment are shown to be a reduction in the number of cases applying for medical care. The provisions for treatment and the results of treatment are described at length with numerous interesting tables. The men admitted freely that the first thought on entering port is "drinks and then girls." It is significant that in 676 cases out of the 961 the first infection is attributed to a commercial prostitute. Ignorance of these diseases is astonishingly widespread; 264 men had knowledge, 388 only "vague" knowledge, while 198 admitted to knowledge of preventive methods. The need for instruction on the subject of venereal diseases is said to have been "conclusively demonstrated." The remainder of the report deals with the social facilities for seamen in the port.

Sanitary Survey in Nicaragua.

A news release from the War Department states that as a result of negotiations between the medical corps of the U.S. Army and the director-general of health in Nicaragua a sanitary survey is to be undertaken of the "Nicaragua Canal Zone." The primary purposes of the survey are "to determine the sources of diseases prevalent in the area with special attention to human carriers, prevalence of insects, and the breeding places of those known to transmit diseases; the extent to which the present inhabitants of the zone of the canal are infected by these diseases; and the water-supply for domestic purposes available in the zone, and the incidence of disease conveyed by its present use." What the secondary purposes of the survey may be is not definitely stated. One might hazard a guess that the building of the Nicaragua canal is one of them.

New Coccus Isolated in Meningitis Epidemic.

The Hygienic Laboratory reports (Public Health Reports, April 18th, 1930, p. 845) the discovery of a new form of meningococcus present in the spinal fluid of 14 cases occuring during the course of an epidemic of cerebro-spinal meningitis in Chicago in 1928. During the same epidemic 33 other specimens showed typical meningococci distributed among the four Gordon types. Morphologically the new micro-organism is indistinguishable from other members of the genus *Neisseria*. Culturally it differs in

producing a yellow pigment, and in its lack of fermentative action. It is also distinct in its antigenic relationships. The 14 strains derived from the 14 cases form a homogeneous group culturally, biochemically, and serologically. The name *Neisseria flavescens* is proposed for the new form. The Laboratory points out that this form is not represented in any of the polyvalent serums now manufactured and that it is of clinical importance, since the fatality-rate in the cases from which it was derived was not less than 30 per cent.

Antinarcotic Organisation.

Speaking recently at a banquet of the Physicians and Surgeons Society of New Jersey, Dr. Stuart Thomson gave some account of the work of the International Narcotic Education Association, an American propaganda organisation on the committee of which he serves. He said that America plans to attend the convention in London "with firm feet and clenched fist." But before making demands there the American is going to clean up his own house by putting out of business the two factories in this country which manufacture synthetic opiates. Another speaker asserted that, while most of the smuggled narcotics enter through the port of New York, an increasing quantity is crossing the border from Mexico.

IRELAND.

(FROM OUR OWN CORRESPONDENT).

"Handy-Women."

AT the annual meeting of the Irish Nurses' Union, held last week, a resolution was passed calling upon all supervising authorities to take action against the so-called "handy-women," as unregistered midwives are popularly called, in view of "the very grave consequences which have lately occurred in maternity cases where unqualified women were acting in the capacity of midwife." It is somewhat surprising to find that twelve years after the passing of the Midwives (Ireland) Act such a protest is necessary. That the evil is a real one was borne out by Mr. T. Hennessy, who suggested that in some cases a medical man had a kind of agreement with an untrained nurse because the trained nurse in the district was unfriendly to him. He advised nurses to report any such cases that came to their knowledge. It is possible that some medical practitioners are not aware that any practitioner who in any way gives countenance or assistance to an unqualified woman to enable her to practise as a midwife is running the risk of having his name removed from the Register. The General Medical Council has issued a warning notice to this effect, and there is little doubt that the Irish Medical Registration Council would take a like view of such an offence.

Motor Accidents and Voluntary Hospitals.

The daily papers in Dublin have recently given a good deal of attention to the burden that is thrown on the voluntary hospitals by the great increase in the number of accidents due to motor transport. The fatal accidents in Dublin, most of them due to motor vehicles, were 27 in number in 1927, 42 in 1928, and 66 in 1929. In almost every case the injured are brought to the nearest voluntary hospital, and rarely does the hospital receive any payment in return for the treatment given. Mr. A. B. Clery, assistant surgeon to the Richmond Hospital, calculates that, in 1929, in-patients suffering as the result of motor accidents cost the hospital between £400 and £500, while the total payments received on their behalf amounted to £82. He estimates that motor accidents cost the Dublin hospitals a sum of about £5000 annually, without taking any account of the cases treated in the extern departments. Sir James Craig hopes for some relief from the Traffic Bill which will be before the Dail in the autumn. If third party insurances are rendered compulsory by this measure, it would be easy to introduce a provision that the hospitals should have a first claim on insurance payments.

Although no cases of psittacosis have yet been reported in Ireland the Minister for Local Government and Public Health in the Irish Free State, in view of the frequent occurrences of the disease in England and other countries in close touch with Ireland, has thought it right to issue an order prohibiting the introduction of parrots.

The Sweepstakes Bill, as it is familiarly called, the measure introduced to the Dail by Sir James Craig for the purpose of legalising the holding of sweepstakes in aid of hospitals and certain other charitable institutions, passed its third reading in the Dail last week without opposition, and has gone on to the Senate.

Mr. R. V. Slattery has been appointed one of the surgeons to the House of Industry Hospitals in place of Sir F. Conway Dwyer, resigned. Mr. Slattery has been one of the assistant surgeons to the hospitals for several years.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lts. V. F. Walsh and J. A. Cusack to be Surg.-Lt. Comdrs.

ROYAL ARMY MEDICAL CORPS.

Maj.-Gen. H. P. W. Barrow, Dir. of Hygiene, War Office, relinquishes his appointment.

Col. P. H. Henderson, late R.A.M.C., to be Dir. of Hygiene, War Office.

ARMY DENTAL CORPS.

Capt. B. W. Tyson to be Maj.

TERRITORIAL FORCE.

Capts. E. L. Elliott and J. McCulloch resign their commissions.

Supernumerary for Service with O.T.C.: Lt. J. H. Strahan resigns his commission.

ROYAL AIR FORCE.

The undermentioned Flying Officers are promoted to the rank of Flight Lt.: R. E. Alderson, A. R. French, J. H. Cullinan, and P. J. Nyhan.

Flight Lt. W. Heron is transferred to the Reserve, Class D.ii.

INDIAN MEDICAL SERVICE.

Capt. D. R. Thapar to be Maj.

The undermentioned appointments are made:—To be Capts. (on prob.): J. McM. Wilder, E. G. Hurd-Wood, and W. T. Taylor.

To be Lts. (on prob.): A. K. M. Khan, F. H. A. L. Davidson, J. H. Gorman, R. T. Hicks, S. M. Kharegat, R. C. Dracup, A. B. Guild, and W. Fleming.

The undermentioned officers retire: Col. A. B. Fry and Lt.-Col. F. H. Salisbury.

COLONIAL MEDICAL SERVICE.

The following appointments have been made: Dr. L. Milburn, Medical Officer, Supernumerary, Leeward Islands; Dr. L. P. Younglao, Medical Officer, Dominica, Leeward Islands; Dr. J. A. P. Cameron, Medical Officer, Malayan Medical Service. Dr. D. S. Johnston has been appointed Medical Officer on the West African Medical Staff.

RADIUM FOR CHESTER INFIRMARIES.—An amount of radium worth £9200 has been handed over to representatives of the Chester Royal Infirmary and the Wrexham Infirmary at Chester. This comes from the £140,000 which has been raised towards the Cancer Campaign Fund through a joint appeal from Manchester, Liverpool, Cheshire, and North Wales. Mr. Joseph Banks, of Hallow Park, Worcester, has given £1000 toward a new theatre at the Chester Infirmary.

Correspondence.

"Audi alteram partem."

A UNIVERSITY DEGREE FOR THE GENERAL PRACTITIONER.

To the Editor of THE LANCET.

SIR,—As a general practitioner of over ten years' standing, may I say that your correspondents, Dr. Franklin and "M.D., M.R.C.P.," have rendered a great service to the general practitioner and the status of general practice? Their reasoned and valuable contributions to the subject of medical degrees for general practitioners must surely command the serious attention of all those who are interested in the future of the proposed post-graduate hospital at Hammersmith. The need is urgent to encourage general practitioners, who, as your correspondents so rightly emphasise, have to deal with the bulk of the sick community, to undertake systematised clinical research. For such research general practice provides rich material, and the advantages to practical medicine as a whole will be enormous.

The University of Durham has for years granted its M.D. degree to medical practitioners—that in itself is nothing new—but with the introduction of a new post-graduate hospital medical school in London, the very heart of the British Empire, the University of London has a unique opportunity of encouraging the general practitioner to continue his studies and to remain a student of medicine. The standard should, as your correspondents point out, remain high, but surely the requirements suggested :

(*a*) clinical research in general practice,
(*b*) a prescribed course of study at the post-graduate hospital,
(*c*) a practitioner of at least seven to ten years' standing,

are high enough. It is sincerely to be hoped that a matter of such importance as has been raised by your correspondents—long since overdue for consideration—will not be brushed aside, but will be brought directly to the notice of the responsible authorities for their serious consideration. By so doing they will be helping to raise the status of general practice, one of the most important branches, if not the most important branch, of medicine.

I am, Sir, yours faithfully,
JOHN L. BOOKEY, M.B., B.Ch., B.A.O.

London, E., May 12th, 1930.

ANGINA PECTORIS AND CORONARY DISEASE.

To the Editor of THE LANCET.

SIR,—In his article on this subject, published in THE LANCET of April 26th (p. 908), Dr. Douglas Hubble referred to a thoery that I put forward in the last edition of Taylor's "Medicine" in these words :—

> On the analogy of œsophageal and gastric pain, cardiac pain would be due to a tonelessness and consequent stretching of the muscle, and amyl nitrite may possibly act by stimulating the muscle to contract down on its contents.

Although I still agree with the general truth of the statement, I should not at the present day use the word tonelessness; but as I have discussed the subject at length in my Oliver-Sharpey lectures (THE LANCET, 1928, ii., 1282 et seq.) I need only give a summary of my views at present, and attempt to answer Dr. Hubble's objections.

In the first place I should like to protest against his regarding myocardial anoxæmia as an alternative explanation to myocardial exhaustion or myocardial distension. I think it is quite possible that the myocardial anoxæmia hypothesis may be correct—there is, in fact, some further evidence in its favour in my lectures; but it provides no explanation of the mechanism of the pain. Anoxæmia can only provide a stimulus that brings the pain mechanism into action.

Now to deal with two objections (*a*) and (*b*). In my lectures I brought forward some experimental evidence that pain in one particular patient was associated with acute left-sided failure, while the right side of the heart was still active, so that within a few minutes a considerable amount of blood accumulated in the lungs. This might mean that the right side of the heart was working against increased resistance, and in its efforts to push on the blood the diastolic pressure rose so that the pain nerve-endings in the wall were stretched. A more vigorous contraction produced by some stimulation—e.g., amyl nitrite—might drive on the blood and stop the pain; but when gross cardiac failure has set in the muscle may be so dilated that there is not enough increased tension during diastole to cause any pain, in spite of feeble contractions. As Dr. Hubble points out, nothing is more striking than the fact that angina pectoris disappears in gross cardiac failure. The above is only meant as a picture of how pain may be produced, and I certainly do not want to be dogmatic on the subject considering the scanty evidence at present available.

Objection (*c*).—The evidence that amyl nitrite stimulates the cardiac contractions was obtained in a personal communication by Dr. Anrep to the writer as the result of his study of the heart-lung preparation. But there is also a clinical observation that amyl nitrite relieved the pain in an anginal attack without any lowering of the blood pressure; but with a great increase of the heart-rate. Of course, there was superficial vaso-dilatation; but I suppose this was compensated for by some deep-seated vaso-constriction, and it cannot have helped the heart. Dr. Hubble himself suggests that amyl nitrite causes dilatation of the coronary arteries which would on physiological principles lead to more vigorous contraction.

Objection (*d*).—While structurally plain and striped muscle are different, the pain nerve-endings in the muscular walls of the heart and œsophagus are presumably the same, and these and not the muscle are responsible for the sensation of pain. I am surprised that Dr. Hubble considers that there is no condition occurring in the stomach and œsophagus which is at all comparable to angina pectoris, when Dr. Walter Verdon introduced his œsophageal and gastric theory of angina pectoris because the conditions are so similar. Sir Clifford Allbutt also thought it reasonable that pseudo-angina might result from the œsophagus, quoting the work that Dr. W. W. Payne and myself were carrying on at that time. I believe myself that it may be very difficult to distinguish the two, and that people who suffer from angina commonly also get pain from reflex œsophageal disturbances. The best way of separating the pains clinically is to ask the patient to make one swallowing movement. If the pain is due to the œsophagus, it may be increased or it may be diminished some seconds after swallowing owing to the passage of the peristaltic wave. But the presence of œsophageal pain is not proof that the patient does not also suffer from angina, because the heart and the œsophagus are so closely related to one another.

I am, Sir, yours faithfully,
E. P. POULTON.

London, W., May 12th, 1930.

FEE-CUTTING IN PATHOLOGICAL SERVICES.

To the Editor of THE LANCET.

SIR,—At the annual meeting of the Governors of Charing Cross Hospital Pathological Institute, Mr. George Verity is reported as having stated that "the Pathological Institute was doing untold good in examining patients who are not of necessity eligible for treatment in hospital" but that "the work will be in jeopardy unless £1000 is quickly subscribed towards it."

May I beg the courtesy of your columns to point out that similar work with similar results is being done in the pathological departments attached to most of the voluntary hospitals throughout the country;

none of these hospitals has, however, as yet found themselves under the necessity of appealing to the general public for funds in support of this work. The fees charged by the Charing Cross Hospital Institute of Pathology for pathological examinations are below those charged by any similar institution in this country, and are set at a level at which, without subsidies from outside sources, it is impossible for them to be performed other than at a loss. It is not surprising to anyone engaged in similar work that the authorities of the Charing Cross Institute of Pathology having set their fees at this low level should find themselves in need of a subsidy.

As to the justification for an appeal to the public for funds to enable the continuance of this policy of fee-cutting in competition with the pathological services conducted by other voluntary hospitals, I leave to your readers to judge.

I am, Sir, your faithfully,

S. C. DYKE.

Secretary, the Association of Clinical Pathologists.
Wolverhampton, May 7th, 1930.

CALCIFIED PERICARDIUM.

To the Editor of THE LANCET.

SIR,—Having read Dr. Vilvandré's article in THE LANCET of March 15th (p. 564) on calcification of the pericardium I wish to record a case to which I was urgently called two years back. When I reached the house I found the patient dead, and was told that death had occurred about half an hour back, because before informing me they tried household remedies to restore him. The patient was a cook of about 65 years. His master had given him only light work, as he was an old servant and unable to do hard work. Before death he was doing light work, sitting and chatting with other servants, who noticed him to fall back suddenly and die. His only disability was that he took a long time to walk even a short distance, owing to difficulty of breathing.

As soon as I arrived, noting the heart had stopped beating, I gave an intracardiac injection of adrenalin, and to my surprise I found difficulty in making my needle enter the heart, and could distinctly feel the needle point touch a stony hardness. Persisting I thought I could with difficulty enter the heart, and I injected twice about 5 c.cm. of adrenalin solution. It was of no avail, as the duration of cessation of life was too long, and perhaps the adrenalin entered partly the calcareous myo-pericardium. I diagnosed the case at the time as calcareous adherent pericardium. There was no autopsy.—I am, Sir, yours faithfully,

Fort Bombay, April 17th. SHAPURJI A. BANKER.

INCOMPATIBLE BLOOD.

To the Editor of THE LANCET.

SIR,—In your issues of May 3rd and 10th Dr. S. C. Dyke refers to direct matching as the only safeguard against introduction of incompatible blood. I should like to point out that recipients often have diluted serum, weak in agglutinins, and should the donor have weak agglutinogens the direct test may not detect an incompatibility which may all the same result in disaster.

Personally I always first perform this test and, if satisfactory, test the red cells of both recipient and donor with 2 and 3 type sera of good titre; as a result of this test a further test is made in each individual, unless he is group 1, by putting up his serum with known type red cells of good agglutinogen content, either type 2 or 3 or both, with the object of obtaining a double positive result.

The method is not unduly long, as there is no need to watch to be certain that an apparent negative is really negative; the positives usually occur rapidly; if they do not, one knows at once that one of the reagents or the red cells or serum of the individual is weak, and that a closer examination is necessary, possibly with titration and absorption tests. Another advantage is that one can deal with confidence with those patients whose sera show apparent agglutination, not always easily demonstrable as due to rouleau formation, with red cells of their own group and even their own red cells. The positives obtained by the "double positive" method are usually with ease distinguished from these pseudo-reactions, which can then be disregarded.

I am perhaps fortunate in being group 3, but if search be made in any hospital staff a member can usually be found who is of this group, and does not mind an occasional drop of blood being taken. If taken in citrate saline, "packed" by centrifugalisation and kept in an ice safe, not frozen, red cells will usually keep in quite good condition for a week.

I am, Sir, yours faithfully,

C. RICKWORD LANE.

Pathological Department, Hampstead General Hospital,
May 9th, 1930.

A HANDY CENTRIFUGE.

To the Editor of THE LANCET.

SIR,—Dr. Dyke's reference to the delay that occurs in obtaining the speedy separation of serum from a recipient's blood when the patient is at some distance from al aboratory centrifuge prompts me to say that this difficulty can be surmounted readily by using the radiator fan of a motor-car. If a Wright's capsule of blood is attached firmly, by means of adhesive plaster, or better, is placed in an easily contrived appliance, at the end of the shaft of the fan, so that the capsule lies along its length with the straight sealed end pointing outwards, a few minutes revolution by the car engine gives an adequate supply of serum. If the capsule of blood is kept in contact with the warm radiator for a short time before attaching it to the fan, a better yield of serum is obtained.—I am, Sir, yours faithfully,

Harley-street, W., May 12th, 1930. ARTHUR DAVIES.

PRACTICE IN SOUTHERN RHODESIA.

To the Editor of THE LANCET.

SIR,—May I draw the attention of men who are well qualified in medical and surgical practice to the excellent opportunities offered by the posts in Southern Rhodesia now advertised in the medical journals. The position carries a salary of £500, rising to £650 per annum as Government medical officer, with the right of private practice, a feature which, of course, makes all the difference to these posts. Southern Rhodesia has a delightful and healthy climate and the country is a most attractive one in which to settle. There are very good schools. Medical men who have been in practice there for a number of years speak very highly of the prospects afforded by Southern Rhodesia, both from a professional and social point of view.

I am, Sir, yours faithfully,

R. A. ASKINS, M.D.,
P.M.O. Elect.

Office of the High Commissioner for Southern Rhodesia,
Aldwych House, London, May 10th, 1930.

THE WATER OF TREFRIW.

To the Editor of THE LANCET

SIR,—In your issue of May 3rd (p. 984) the interesting account of the mineral wells at Belle Vue Spa, Trefriw is a little misleading in one important point. Comparison is made with the famous Matchless wells at Alabama. It should be noted that the iron in Belle Vue Spa water is entirely in the bland non-oxidised ferrous form, appropriate for internal use. As far as can be judged from published analyses it is the strongest water of this variety so far discovered in Europe or America. The water of the Alabama wells contains a considerable proportion of irritant and astringent ferric salts.

I am, Sir, yours faithfully,

Cavendish-square, W., May 8th. N. MUTCH, F.R.C.P.

CÆSAREAN SECTION UNDER SPINAL ANALGESIA.

To the Editor of THE LANCET.

SIR,—We are interested to read in your last issue (p. 1012) that Mr. J. W. Burns of Liverpool agrees that spinal analgesia is a valuable aid to the safety of Cæsarean section. In 1923, we drew attention[1] to the advantages of this method, and emphasised the following points: the powerful contraction of the uterus causing ischæmia, and conducing to a strong suture line; the immediate activity of the child; the satisfactory general condition of the patient after operation; and the special value of the method, in Cæsarean section, for cases of diabetes mellitus, phthisis, toxæmia of pregnancy, heart disease, and fibroids requiring myomectomy. We agree with Mr. Burns that morphia should be withheld before operation in order that the child may not suffer from the depressing effects of the drug. These facts have been confirmed by other observers in Great Britain and elsewhere.

The retching to which Mr. Burns draws attention, is, in most cases, produced by the pressure of the firm uterus on the abdominal contents. Usually it ceases as soon as the child has been extracted.

With but few exceptions patients are tolerant and helpful with the necessary technique, and several have willingly consented to "spinal" at a subsequent Cæsarean section.

We are, Sir, yours faithfully,

BECKWITH WHITEHOUSE.
HENRY FEATHERSTONE.

Birmingham, May 13th, 1930.

THE FIRST INTERNATIONAL CONGRESS ON MENTAL HYGIENE.

(FROM A SPECIAL CORRESPONDENT.)

THE First International Congress on Mental Hygiene was held in Washington, D.C., from May 5th to 10th. Its object was to bring together for the first time all those interested in the various aspects of mental hygiene—medical, legal, and social.

The mental hygiene movement was started in America 22 years ago by Mr. Clifford Beers and has since spread to every country in the world. The aims of the congress were to give the fullest possible ventilation to the many medical and social problems with a mental hygiene basis, and to bring together representatives from all over the world in the hope that a fuller coördination and coöperation in the field of mental health would be thereby attained.

The first session for discussion was held on May 6th, when Dr. HAVEN EMERSON, Professor of Public Health Administration, College of Physicians and Surgeons, New York City, dealt with the magnitude of

MENTAL HYGIENE AS A PUBLIC HEALTH PROBLEM.

He said that resources for interpreting mental limitations, for helping human beings in adaptation to circumstances, for guiding them, and treating them with discrimination through episodes of emotional maladjustments have greatly expanded.

No longer could the health officer satisfy his community or the sciences and arts of preventive medicine through the traditional development of programmes to control communicable diseases, to detect the physical defects of school-children, to protect maternity and infancy, and to teach the health rules of nutrition, rest, and physical recreation. He must give account to his population for the incidence of suicides, showing correlations, perhaps, with unemployment, the prevalence of divorce, nativity, sex, and occupation. Was it not at least as important that the suicide-rate had risen from 4·9 to 19·7 for each 100,000 of our people in seventy years as that the diabetes death-rate had done about the same? Was there a greater need to report upon a rising death-rate from appendicitis or to analyse, publish, teach, and if possible prevent the conditions that have brought about a rise in the divorce-rate from 26 per 100,000 to 68 per 100,000 in less than 50 years? If the Traveller's Aid stations at city railroad terminals revealed the incidence of runaway children, unwholesome homes, the too-heavy hand of discipline, the misunderstood errant child, were they not as essential to our plan of public health as the collecting depôts for diphtheria smears and typhoid cultures at drug stores and hospitals? Among unselected children of four years of age, considered by their parents to be normal, coming from self-supporting families of various economic levels in a medium-sized industrial city of New England, and showing by the standard tests a range of intelligence of from 75 to 150, 36 per cent. were found to have characteristic behaviour problems that were likely to develop into personal or family embarrassments. These unadapted or badly trained or ill-adjusted little folk were found to be distributed with considerable uniformity among the dull, the average, and the bright. The bulk of the problems presenting at this age were included under the rather general categories of fears, extreme shyness, severe speech difficulties, and the more precise phenomena of tantrums, interference with appetite for and use of foods, and enuresis. These evidences of deviation from good health appeared with an incidence higher than that of any other defect or disorder of apparently normal childhood of this age, unless it be in the realm of dentition. So far as the problems of pre-school childhood brought the boy or girl to the brink of social failure, they called for professional diagnosis, aid, and prevention.

The problem for public health, for the avoidance of behaviour problems in children under school age, was to include in the plan of service to parents such personnel as could be trusted to notice evidences of deviation from normal conduct in the home, to advise parents to seek professional guidance, when necessary, for themselves as well as for the child, and to deal with early and mild disturbances in this field, as was done with physiological errors in the field of growth, nutrition, and infection. The community was beginning to realise that the typhoid carrier and the small-pox patient were no more dangerous in the community than was the partly well mentally disordered patient. To be immune to the buffets of social intercourse was as important for a child as to carry a certificate of a negative Schick test. Failure of emotional adjustment might at any time become a communal hazard. Dr. Emerson said that the health officer must begin to ask himself such questions as: Will the psychiatrist get to the mean, lazy, ne'er-do-well before the policeman does? Will the bully the fearful child, the miserable man, meet a wise social worker before he is forced into an institution?

Evidence obtained from various studies indicated that with a population of 120,000,000, 4,560,000 under five years of age could probably show some behaviour problems which, if not noted and in some measure dealt with, would lead to personal or family dilemma or disturbance; 250,000 between five and fifteen years of age would be suffering from major speech defects, and a similar number would need special class training because of mental defect; 3,135,000 would develop some behaviour problem that calls for professional assistance. 250,800 school-children before they were fourteen years of age would be held at least temporarily as delinquents; 76,000 young men and women from twenty to twenty-four would suffer damage or distress as a result of emotional difficulties. Without counting adult delinquents or inmates of mental hospitals, one could assume that at least 288,000 could need a psychiatrist's advice within the year, and of the 1,443,000 who would become major dependency problems 216,450 would be in families in which there is a case of mental disorder.

For these 10¼ million of the people at various ages who would not be listed among the insane or the criminal, but whose lives would be narrowed, warped, tangled, and lacking in happiness or gentleness, something in the way of prevention could at least be attempted. System, method, and the persistence of organised effort by trained and understanding representatives of the sciences and of society, could and surely would show results, first among the little children and later among the army of school youth.

Discussion.

This paper was followed by a discussion, opened by Dr. GUSTAV KOLB (Germany) who said that in Germany it had not been possible t develop many new institutions since the war owing to financial considerations,

[1] Proc. Roy. Soc. Med. (Sect. Obst.), 1923, xv., 55; Jour. Obst. and Gyn. Brit. Emp., 1923, xxx., No. 4; Brit. Med. Jour., 1923, ii., 878.

but that a great deal had been done towards improving those already in existence. Social work directed to the after-care of patients who had been in institutions for the mentally diseased was being greatly extended and the principle of prophylaxis of mental illness had come to be fully accepted. There was great need for more uniformity in respect of nomenclature and classification, and he hoped that this congress would do something towards the achievement of this ideal.

Sir HUBERT BOND, who was attending the congress as the official representative of H.M. Government, hoped that this congress might be of signal service in relation to the administration of the new Mental Treatment Bill which he hoped would soon become law in England. This Bill would realise the vision expressed many years ago by Sir Clifford Allbutt who believed that the more static mind of the lawyer must necessarily come to terms with the dynamic mind of the biologist. Medicine in relation to mental hygiene had been much hampered in the past by lack of elasticity both in regard to legal and lay opinion. Elasticity was essential not only for them but for the doctor, nurse, and the social worker, who are all coöperating in the work of mental health.

Dr. GENIL-PERRIN, General Secretary of the French League of Mental Hygiene, read a paper on

SYPHILIS IN RELATION TO MENTAL HYGIENE.

He summarised the current data concerning the rôle played by syphilis in determining various mental disorders, and pointed out that the mental disorders arising indirectly from syphilis were worthy of as much attention as those which are due to its direct action. He wished to emphasise the moral trauma produced by syphilis.

Through the fear syphilis inspired it was a cause of moral disturbance, even among those who were not contaminated by it. Syphilophobia was a kind of hypochondriacal preoccupation, or phobia which was not distinguishable from the other phobias from the point of view of its psychological mechanism, but which was particularly dreadful in its consequences, since it influenced the sexual and even the social behaviour of the patient. To the conscientious individual, the discovery of syphilis in himself constituted a tragedy. The new syphilitic was in need of moral support, and this was one of the most dramatic points of contact between mental hygiene and syphilis.

Just as it was necessary to ferret out syphilis in the psychic abnormal on account of his disposition to catch and to transmit it, it was necessary, also, to look for psychic abnormality in the syphilitic because it increased inordinately his social danger.

Individuals who married against medical prohibitions must be considered psychically abnormal, and needed moral re-education.

Moral education, sexual education, prophylactic education all implied the coöperation of the mental hygienist, since he was better qualified than anyone else to decide on the best methods to employ.

In the course of the discussion Dr. WILLIAM F. SNOW (United States) spoke of the numerical magnitude of the problem. He estimated that by far the commonest age of incidence of syphilis was from 20 to 25 years and that it occurred chiefly among the relatively indigent. Dr. Snow was opposed to any compulsory control of prostitutes, who should receive treatment on the same terms as any other member of the community. It was wholly inadvisable to mark them out as a group. Any person who refused to be treated for syphilis must be suffering from some kind of mental abnormality. Mental hygienists must work in coöperation with educators and social workers in developing the right attitude of mind on the part of the public towards this great problem.

A representative from Hungary was interested to find that the statistics relating to syphilis in such a comparatively eastern country as Hungary aproximated so closely to those obtaining in France and the United States.

THE CONGRESS DINNER.

The International dinner inaugurating the congress was held on May 5th at Hotel Willard. Nearly 1000 people were present, including foreign delegates from 53 different countries. The principal speakers were Dr. William A. White, President of the congress, who took the chair; Dr. Frankwood E. Williams, the chairman of the committee on the programme; Mr. Clifford W. Beers the secretary-general of the congress, an official representative of each of the six continents, and the Hon. Ray Lynman Wilbur, M.D., Secretary of the Interior, who spoke on some aspects of the world movement for mental health. Dr. Wilbur stressed the shift from the physical to the mental aspects of life and said that it was a sign of the advance of civilisation. The power of the mind in national and international affairs was everywhere coming to be recognised as of more importance than big battalions. Even in the war it became obvious that organised propaganda was more potent than bullets. He believed that the hope for the world's future welfare and progress lay in the development of right thinking and controlled emotion, and that these questions were essentially those which came under the aegis of mental hygiene.

(To be continued.)

HOSPITAL COÖRDINATION UNDER THE LOCAL GOVERNMENT ACT.

THE LONDON VOLUNTARY HOSPITALS COMMITTEE.

Section 13 of the Local Government Act, 1929, provides that:

The council of every county and county borough shall when making provision for hospital accommodation in discharge of the functions transferred to them under this Part of this Act, consult such committee or other body as they consider to represent both the governing bodies and the medical and surgical staffs of the voluntary hospitals providing services in or for the benefit of the county or county borough as to the accommodation to be provided and as to the purposes for which it is to be used.

"The London Voluntary Hospitals Committee" is the title that has been taken by the committee elected by the hospitals in the County of London for the purpose of consultations with the London County Council under this section. There has not hitherto existed in London any suitable body for this purpose, and a scheme of representation was therefore drawn up and submitted to the hospitals, for their comments and approval, by a joint committee consisting of representatives of the Voluntary Hospitals (Local Government Bill) Committee of the King's Fund, the Conference of Teaching Hospitals, and the London Regional Committee of the British Hospitals Association. The scheme provides that every hospital in the area shall have the right to nominate at least two representatives, one representing the governing body and one the medical and surgical staff, upon an electoral body which is divided into six sections for the purpose of representing five areas (north-western, northern, north-eastern, south-eastern, and south-western) and the special hospitals whose work cannot be localised in relation to any particular area. Each of these five area committees and the non-localised special hospitals committee in turn elects its own representatives upon the central committee, the method of representation being such as to ensure that teaching, non-teaching, and special hospitals are each given proportionate representation. Meetings of the various electoral bodies were convened in the latter part of March by members of the joint committee, to which reference has been made above, and the central committee was able to hold its first two meetings during April.

Personnel of the Committee.

Lord Riddell is chairman of the committee, Dr. Geoffrey Evans its hon. secretary, and the other members are as follows :—

Mr. A. Lawrence Abel, F.R.C.S., Mr. F. S. A. Baker, Lady Barrett, M.D., Mr. O. N. Chadwyck-Healey, Mr. Thomas Clapham, Lt-Col. Clement Cobbold, Dr. Edmund H. Colbeck, Capt. the Rt. Hon. C. C. Craig, D.L., Mr. Robert Davies-Colley, F.R.C.S., Prof. L. S. Dudgeon, F.R.C.P., Mr. Arthur G. Ferard, Mr. Charles Gibbs, F.R.C.S., Sir Henry Gooch, J.P., Mr. E. L. Pearce-Gould, F.R.C.S., Dr. A. M. H. Gray, Capt. A. M. Hughes, Sir Henry Jackson, Dr. J. M. H. MacLeod, Sir George Makins, F.R.C.S., Mr. M. S. Mayou, F.R.C.S., Mr. E. Vernor Miles, Mr. Arthur Morley, Mr. E. W. Morris, Mr. Gilbert G. Panter, Mr. D. Denham Pinnock, F.R.C.S., Dr. Arthur Porter, Dr. Harold Pritchard, Mr. D. W. Roy, F.R.C.S., Dr. T. H. G. Shore, Dr. E. Bellingham Smith, Mr. H. S. Souttar, F.R.C.S., Mr. Widdrington Stafford, Mr. Thomas G. Stevens, F.R.C.S., Mr. Austin Taylor, Sir William H. Wells, F.S.A., Mr. J. P. Wetenhall, Mr. Francis P. Whitbread, Dr. C. M. Wilson.

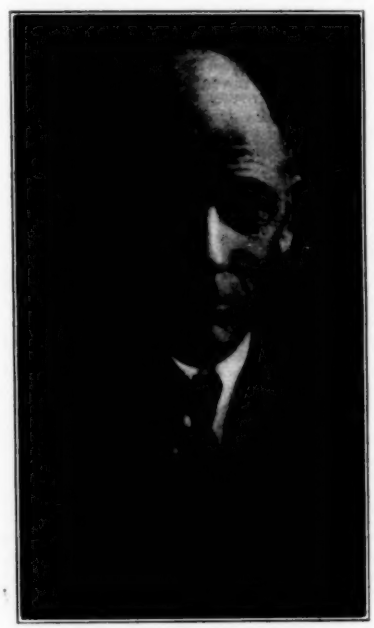
The address of the committee is 23, Park Square East, London, N.W.1.

Obituary.

JOHN EDWARD SANDILANDS, *M.C.*, M.D., D.P.H. CAMB.,

LATE EXECUTIVE HEALTH OFFICER, BOMBAY CITY.

John Edward Sandilands was born in 1872. He was educated at Harrow (E. E. Bowen's House), where he reached the VIth Form and represented the school in the Public School boxing championships before he left in 1890. After six months in Paris he went up to Trinity College, Cambridge, where his exploits will be long remembered. He read natural science and medicine, having made up his mind early in life to become a doctor, and obtained second-class honours in the Natural Science tripos. At Cambridge he made many friendships which lasted through his life. He began his clinical work at St. Bartholomew's Hospital in 1893, and qualified in 1897, taking his medical degree at Cambridge in 1918 and the M.D. and D.P.H. six years later. He held the post of house physician to Sir Lauder Brunton at Bart.'s and that of house surgeon at the Metropolitan Hospital. In 1900 he went out to India to help combat a plague epidemic; from there he was transferred to Aden, and then proceeded to South Africa to serve as a civil surgeon during the concluding months of the Boer War. On his return to England Dr. Sandilands became assistant medical officer under the Metropolitan Asylums Board on the small-pox ships at Dartford (the old Castalien or Calais Douvres) where he found the hygienic conditions far from satisfactory. Determined to gain experience in public health work he obtained an appointment under Dr. (now Sir George) Newman in Finsbury, and in 1905 he was appointed medical officer of health for Winchester, where he stayed till 1909, when he was appointed medical officer of health of Kensington. These were the days when baby clinics and various measures for child welfare were being brought into being, and he took a keen interest in their development. In the spring of 1914 he joined the Territorials, mainly in order to get the opportunity for some horse riding on economical terms. Within a few months he was called up for war service and probably welcomed the change of occupation. He went to France with the 5th Field Ambulance of the 47th Division until 1916, when he was forced to undergo a severe operation. As soon as he was moderately fit he returned for a short time to his duties in Kensington. When his health was restored he again offered himself to the Territorial Force and was refused; but he obtained a commission as a temporary officer in the regular R.A.M.C. and returned to his old ambulance in France just in time to act as a bearer officer in the great attack on Messines in 1917. For his work during this period he received the Military Cross. He continued to serve in the same field ambulance until after the retreat in March, 1918, and it was characteristic that the more risky job of bearer officer attracted him more than any other. Later he was placed in command of a motor ambulance convoy with which he remained until demobilised. Now in full health, Dr. Sandilands returned once more to Kensington, but after barely a year's work was appointed executive medical officer to the Municipality of Bombay where he stayed for nearly ten years. His work at Bombay tried his natural ingenuity and tact to the full. He was faced with the task of reconciling Western ideas of sanitation with Eastern religious beliefs—and he had some measure of success in the task.



DR. SANDILANDS.

[Photograph by Clifton, Bombay.

Dr. Sandilands was very popular in Bombay. There, as elsewhere, he was known as "Sandy" to a large circle of friends, and was frequently to be seen at the Yacht Club, and at the Willingdon Club where he played golf. He was very tactful, and got on well with Indians. As regards his work, he had an uphill furrow to plough. His views on public health were eminently sound, but he was unable to carry out many measures which he would have liked to see in force. Examples of these are the big drainage scheme which was much overdue, and more rigid enforcement of anti-malarial measures. He was a firm supporter of Lady Lloyd's efforts for child welfare in India. Ill-health compelled him to return home last summer, a few weeks before his appointment expired. He underwent another severe operation in the autumn, from which he had reached convalescence when he died quite suddenly on May 8th.

Dr. Sandilands had numberless friends outside his profession as well as within it. He was full of wit and humour, often seeing events from the most unexpected points of view, and he was possessed of the most arresting and fascinating powers of narration. It is the more unfortunate that his published work is scanty. In 1904 he married the eldest daughter of the late W. L. Courtney, editor of the *Fortnightly Review*, and he leaves a widow, two sons, and three daughters.

THE LATE DR. C. J. BATTLE, OF KLERKSDORP, S.A.

Dr. Charles John Battle, who died at the General Hospital in Johannesburg on March 19th in his fifty-first year, was the oldest son of Charles Key Battle, of Lincoln, and qualified from St. Thomas's Hospital, London, in 1903. Soon afterwards he went out to

South Africa, where he practised first in Natal and then on the East Rand. During the late war he served in East Africa as Captain in the South African Medical Corps under Lieut.-Colonel H. J. Orford, whom he joined in practice at Klerksdorp when the war was over. Dr. Battle was medical superintendent of the hospital there, and held office as district surgeon, railway medical officer, and medical officer of health. He had the reputation of a careful and accurate diagnostician, and five years ago came to England for post-graduate study, acting as assistant house surgeon at the Bristol Royal Infirmary. His last illness was an insidious lung infection which later became pneumonic in character and resulted in an abscess requiring incision. Dr. Battle married in 1921 Peggy, daughter of E. S. Lawlor, and leaves a widow with a boy of eight.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

DEBATE ON MINISTRY OF HEALTH VOTE.

(*Continued from p. 1044.*)

THE HEALTH SERVICES: MALINGERING.

Dr. MORGAN said that every day he was engaged in administering the Act. They had been told by a Member who was the representative of one of the industrial approved societies that the malingerer was made and not born. That was to say, he was made apparently either in his own house or in the doctor's surgery. Sir Kingsley Wood had said that lax certification was due to the fact that new doctors came along and wanted to make their practices very quickly out of the National Health Insurance Act. As one who administered the Act every day he said that from the medical point of view there was no general laxity of certification on the part of the medical profession. There was no general malingering going on. Every day he had patients coming to him to whom he had given a certificate of incapacity, and they asked him to certify them as fit. He might say, "No, in my opinion you are not fit to be taken out yet, and I will give you a certificate of incapacity still." They always agreed, and left it to the doctor to decide whether they should come off. People were gradually getting to have a knowledge of their rights, and were demanding them more and more. Some approved societies for years had been trying to educate the insured persons as to his rights against the doctor, and trying to get him to make charges against the doctor. The doctor's job was difficult enough at any time, but certain societies and their agents had tried to excite a feeling against the medical profession for what they thought was laxity. They forgot that, at the same time, the insured person was being educated in his rights against approved societies, and he knew now what he was entitled to, and that when he was ill he could receive the benefits for which he had paid. What was more, his employer was much more keen now that his employee should come under the Act and get its benefits. The Government actuary made it perfectly clear that it was a wider number of persons claiming benefit for a shorter time, and not persons claiming benefit for a long period that was responsible for the increase. A larger number of the population were taking advantage of the Act. They were ill, and the plea that the increase was due to malingering or laxity on the part of the doctor was not true. He had found, as a doctor, that it was to the benefit of himself and the insured person that the patient should come on the panel early. Many said "Shall I come on the panel or not." He used his judgment and if he said "You should," he kept them there as long as he thought they should be there. The Insurance Act was not brought into existence for the sake of the approved societies, the doctors, the chemists or the State, but for the benefit of the insured person, and the individual insured person had enough to suffer! There was equality of payment, but not of benefit. A man might be registered in Manchester, become unemployed, go to London, choose another doctor, and get ill. Then there was a whole series of performances to go through—sending certificates to Manchester, and so on, before he could get the benefit. The whole system was riddled with anomalies to the disadvantage of the person for whose benefit the Act was introduced, and part of the criticism of the doctors was employed to hide criticism of the approved societies. Because approved societies wanted to hide the charges against them for the administration of the Act they levelled charges against other people. Increased cost was not due to the change of doctor, which the patient had a perfect right to do. It was due to more than that.

The Protection of the Insured.

The doctors were organised, the State was organised, the chemists and the approved societies were organised. The one person not organised was the insured person. The sooner somebody in the country called for a league of insured persons and made them pay, say, a penny a month to see that they got their benefits and rights under the Act, the better it would be. They required to be protected not only from the doctors, but from the chemists, the societies and the State. The sooner that was done the quicker there would be a change in the administration of the Act, and the full benefits recommended by the majority of the Commissioners would be brought in. The sooner, too, would be brought about the changes recommended by the minority—hospitals and convalescent treatment, dental treatment, eye treatment, not only for those who happened to be in favoured rich societies or favoured rich occupations, but all insured persons. Seeing that they paid equal contributions, they should also have equal benefits. The Minister of Health had given a very impartial view of the situation, and when certain allegations and charges were being made, it was their duty to investigate departmentally or otherwise those allegations. What he had said was perfectly correct, that there was a gradual lowering of physique due to unemployment. They did not find that in the year the unemployment started. It took some time, owing, perhaps, to a lack of nutriment and the proper vitamin content in the lowered dietary. But after a series of years of unemployment people gradually deteriorated in physique, and when they were ill they had a tendency to ask for the benefits of health insurance. He had what he called the "in-and-outers" on his list. There were the women with varicose veins. At any time these people, if they so wished, as any doctor knew, could ask for certificates of incapacity, and he defied any doctor, specialist, medical referee, or regional referee to refuse them a certificate of incapacity. They ought never to be at work. The same thing happened with bronchitis and asthma, and he had cases of men hanging on to work when really they should not be about. These "in-and-outers" under a decent system of society would not be at work at all, but would be treated as sick and invalid. There were Members of the House of Commons who were not administering the Act, and had only a secondary knowledge of it. They had not got to go into dark, dismal buildings, barking their shins and hurting their hands on doors, and seeing the conditions under which people were living every day. Doctors had to treat pneumonia in damp dwellings, and maternity cases in disgraceful conditions. The members of the public of whom he spoke sat in comfortable offices and said "lax certification." Frequently they telephoned to know if the certification was correct or not, as if a doctor would sign a certificate without knowing what he was doing. He did not say doctors did not make mistakes; they made grave mistakes. But he was sure, from discussion with medical men all over the country, that there was no malingering on the part of the insured person and no lax certification on the part of doctors. Many changes were necessary in the Insurance Act, and he was sure that the approved societies would have to be changed. They would have to have national amalgamation and a pooling of surpluses. The insured person would insist on an equality of benefits for an equality of contributions, and when that time came approved societies with a large number of members in sheltered occupations would be up against it. He hoped that the House would allow the Minister of Health to go on and do his business without hindrance, that the committees would be allowed to do theirs, and that the medical profession would carry on the provisions of this onerous Act with the least possible difficulty.

Views of Regional Medical Officers.

Lieut.-Colonel FREMANTLE said they were much relieved to hear that the question of excessive claims for insurance benefit was under further examination. It had been suggested that the experience of the first three months of this year indicated that this phase of things was coming to an end, but he (Colonel Fremantle) doubted very much whether such a steady rise going on year after year would be terminated as quickly as had been freely suggested. And he would lay emphasis on the views of some of the regional medical officers, and more especially one opinion from one of the chief medical schools of London who took a detached line, wished to make the scheme run smoothly, and was used to dissecting and analysing such records. This review of the factors in the situation showed that there were to blame both those who took advantage of the scheme

as receivers of benefit and those who took advantage of it in administration of benefit. Both among medical men and insured persons there were a certain number who had less conscience than others. An hon. Member put the number of malingerers as high as 1 per cent.—that was to say, out of 17,000,000 persons there would be 170,000 potential malingerers. He would not have put the figure so high, but they must all recognise that malingerers existed. Ordinary human beings tried to get the most out of a State service; in fact it came natural to them. As his friend the regional medical officer said in his review, that state of affairs was not confined to any one class. No one was more responsible for this attitude towards national insurance than Mr. Lloyd George who managed to send the cry "ninepence for fourpence" throughout the country—a most immoral doctrine which had its vogue. Now the disadvantages of it were recoiling on the insurance scheme. If there were a deliberate attempt to defraud the scheme he did not think there would be any difficulty in detecting and preventing such definite frauds. But it was generally not fraud either on the part of the insured person or the doctor. He asked hon. Members who had been trying to make the doctors the scapegoat to recognise that the facts of the case were the other way round. Here was one of the most vivid descriptions he had seen as to how this affected the individual:—

"The patient, feeling desirous of a rest, goes to his panel doctor and practically says, 'I do not want a prescription but only a certificate.' The doctor, knowing the immediate result which a refusal would bring about, rarely dares to disoblige. It is no trivial annoyance for an angry patient to remove his name from the doctor's list, because it does not stop at that; he tells his friends and acquaintances and the doctor gets a bad name in the neighbourhood, which is detrimental to his income."

That was the way in which this regional medical officer summed up the situation. Naturally it was his business to please his patients, whether they were private or panel patients. He remembered one doctor summing up a busy practice in this way: "My practice is to give the patient the benefit of the doubt, and if after some time there are still doubts, then I give my partner the benefit of the doubt, and in the last resort I refer the case to the regional medical officer, and give him the benefit of the doubt." That was the way medical men carried on a very busy practice, and if they had a rule-of-thumb method of carrying out their duties that was very serious. Although there might be a setback in the first three months of the year, he (Colonel Fremantle) believed that the real fault was inherent in the system, and was due to the fact that it was a State system supported by the notion of the Labour party that the nation had a bottomless purse, and the Government always had the idle rich to draw upon. Let them contrast that with the old system of the friendly societies, as summed up in the societies' reports over and over again, for this induced a spirit of loyalty among the members. There was then a tendency among the members to make the best of things and come on the funds as little as possible. Owing to the effort to spread the principle so as to go into every nook and cranny and relieve every form of hardship in every form of sickness, they had done away with the voluntary principle which once attached to the separate and independent entity of the friendly societies, and they now had endless claims on what was regarded as a bottomless national purse. They could not reverse the hands of the clock; they had to try to encourage the old spirit which formerly attached to friendly societies. They had to cultivate the spirit of loyalty in friendly societies on the one hand and among medical men on the other in order to get through the difficulty. It was no use trying to coerce any body of professional men, most of all medical men, because they had always got the whip hand in the end. They alone understood the technicalities and it was necessary to work with them. The Ministry of Health had been extraordinarily sympathetic towards medical men in understanding their difficulties and helping them through. There was now a scheme under which a medical practitioner whose action was called in question could submit his case first of all to the judgment of the regional medical officer, and then to a jury of medical men. This would have the greatest effect upon medical practitioners. It was suggested that medical men were too lenient in these cases, but the last thing medical men wanted to do was to cover up the misdeeds of those who were letting them down. The chief difference between private practice and insurance practice was that there were penalties in the latter if doctors did not thoroughly examine their patients and gave certificates for sickness benefit without discrimination. Those were the doctors they wanted to catch. The Minister of Health was trying to devise a method by which they could be caught and penalised, because they had no use for them. Those were the opinions of those who spoke with the experience of the British Medical Association, and they represented the opinion of the great majority of the doctors.

Excessive Prescribing.

Two particular cases of excessive prescribing had been brought to the notice of the Ministry of Health, and they had been referred to the referees. In one case the referees upheld the decision of the Minister, but not in the other. It was shown, however, that excessive prescribing did exist. Some of those who wished to support the idea of giving benefit at any price had taken the line that medical men were justified in prescribing to any extent so long as they were doing what they considered was best for their patient. In this particular case it was a firm of four men who, as reported by the referees, were all men of very high principle, who wished to do the best for their patients; but the amount of prescribing in that case could not possibly be countenanced. This question was obviously a very delicate one. The ordinary doctor, certainly in his day, was brought up to be fairly regardless of cost in regard to prescriptions, dressings, equipment, and so on, in the hospital, but it was a very different matter when one had to provide these things for himself in private practice. The natural tendency was for a man to use these things without regard to cost, and that tendency must be restrained, but without damaging the effect of the advice. The only way to do that was to take the profession generally into confidence, and get their coöperation. He believed that good machinery had been devised now which would meet this case. It was necessary to watch the tendency, which was liable to be a fatal one, on the part of people to fall back into the arms of the State in order to get everything done for them. The idea was futile in the matters of the prevention of ill-health that the State could do things for the individual. Prevention was only possible so far as the community would do its part. A very remarkable statement was made last November at the National Conference of Friendly Societies. The chairman said:

"There is in evidence, however, another development less desirable in its reaction upon the life of the nation. Useful though these schemes of national health insurance are, there is a very real danger in their over-development. Any scheme, however good, which removes the incentive to provide for the future, and encourages all and sundry to look to the State to make provision for that future, forgetting all too often that they themselves are the State, must tend to weaken the national fibre, which thrives and develops in an atmosphere where thrift is practised and where self-reliance and independence are fostered."

He (Colonel Fremantle) could not believe that excessive prescribing was in any way associated with the increase of sickness, owing to the industrial difficulties through which the country had passed. They had seen the death-rate figures steadily coming down year after year from 1921, and an even more definite indication of health conditions was the fact that infantile mortality had steadily gone down. It was quite true that there was a small rise in this very accurate index of the health of the nation during 1924 and 1925, but the decline after that continued, the figures being 75, 70, 70, and 65, respectively. Yet another index of sickness was the tuberculosis death-rate. The number of deaths from pulmonary tuberculosis had gone down from 33,000 to 29,000 per annum, and the number of deaths from other forms of tuberculosis had gone down from 10,000 to 7000. He did not believe that there was any real increase of sickness among the people. Some of the very best and most useful health work done throughout the country was done by voluntary societies and voluntary hospitals, and he hoped that every effort would be made to encourage these schemes in the future administration of local government and of the health services of the country, not least in connexion with the post-graduate hospital which had been so warmly commended on every side, though, he thought, a little without regard to the difficulties that there must be in enlisting the voluntary skill and experience and efficiency which were at present associated with the medical schools in London and elsewhere in the country. He hoped this new post-graduate hospital, founded with such excellent intentions after so many difficulties and failures, would manage in some way—though it was difficult to realise how—to enlist the best sympathies and efforts of all the 13 medical schools in London, and that they might expect the creation of the greatest post-graduate medical school in the world, and certainly in the Empire.

Treatment at British Spas.

Mr. PERRY appealed to the Minister of Health to sanction the inclusion in additional insurance benefits of treatment at British spas for rheumatism and allied diseases. At present the cost of such treatment was beyond the means of the vast majority of the workers. The British Spas Federation had drawn up a scheme for the consideration of the Ministry and the approved societies. They had come to an agreement with the British Medical Association in regard to the scale of fees under which exactly the same medical service and treatment now given to private patients would be

available for insured persons. It was approximately 18s. a week for the baths and course of treatment. The medical fees worked out at 7s. a week, or a guinea for a course of three weeks' treatment. At the moment no hostels or institutions were provided, but he believed that arrangements had been made whereby at a cost of 35s. a week good, high-class accommodation could be provided for those attending and taking treatment. That meant that at an approximate inclusive cost of £3 or 3 guineas a week, if approved societies were encouraged to make this one of their additional benefits, treatment at English spas, similar in every way to that enjoyed by those who had the means to undergo it, would be at the disposal of insured persons.

Reply to the Debate.

Miss LAWRENCE (Parliamentary Secretary to the Ministry of Health), replying to the debate, said that taking the total increase of £216,573 for administration in England and Wales, this was accounted for as follows: £50,000 in automatic increments, £18,000 due to the cost of living increase, £118,000 due to the administration of new services, £11,000 in respect of the increase of the whole-time dental staff, and £11,000 due to various increases in regard to initial expenditure on medical staff. It was under Sir Kingsley Wood's administration that the men's sickness claims rose from 76 to 107 per cent. of expectation and disablement claims went up from 54 per cent. to 100 per cent. It was also under the right hon. gentleman's administration that the regulation allowing panel patients to change their doctors at very short notice was begun. But she did not intend to follow the right hon. gentleman in the manner and temper of his speech. This was really a very big and somewhat obscure question, and it was not new. The truth was that these claims had risen steadily from 1921 to 1928; 1928 was the peak year. The number of claims had not been analysed for the two later years, but she would give some figures as to the total amount paid in benefits. In this total she was adding in for the last two years for comparison the £2,000,000 transferred to the Widows', Orphans' and Old Age Pensions Fund. In 1927 the amount rose to £18,135,000. In 1928 it went down by nearly £1,000,000—adding in the £2,000,000—and then rose again in 1929 to £19,600,000; but in the opinion of the experts the increase was wholly due to the lamentable influenza epidemic of the earlier months of the year. The figures were dropping now in the earlier months of this year. It was very remarkable that the duration of sickness had hardly risen at all, but there had been an increase in the number of claims in respect of short illnesses. If that were due to improper certification, the practice might increase, but it was not so, because the statistics were almost unaltered during those years. That led one to believe that there were other reasons besides those which had been stated. She asked the Committee not to pass any rough-and-ready judgment on this mass of very confused statistics. The report which had been issued was one of the most valuable things that either the medical profession or the approved societies had ever had. The Ministry proposed to follow up the report and to give the information year by year The approved societies and the medical profession had now rather changed their mind and were inclined to think that a somewhat longer period within which a patient might change his doctor was necessary. The British Medical Association and the Council of Approved Societies had drawn up a scheme under which they would be able to review the case of any one of their professional brethren.

Dr. MORGAN: Will the hon. lady consider the possibility of a doctor who is unpopular, not for medical reasons, being dealt with unjustly by his colleagues who differed from him not medically but for other reasons?

Miss LAWRENCE said that she thought that the general medical opinion of the district was very much better and more acceptable for correcting any eccentricity in a medical man, because the representatives of all the persons concerned were considered.

Sir KINGSLEY WOOD asked if Miss Lawrence would give a little more information to the Committee about the new regulation in relation to the penalisation of doctors and the method of dealing with the matter?

Miss LAWRENCE said that the British Medical Association, the Conference of Panel Committees, and the Consultative Council of Approved Societies had agreed that where there was anything abnormal in a doctor's certification a panel committee should be chosen from the panel doctors in his own area to review the case.

Mr. MCSHANE: Is it not true to say that every one of those doctors who are going to sit in judgment is an interested person?

Miss LAWRENCE said that was so in a sense. The panel practitioners in a district have a common interest in maintaining the professional prestige of their brethren, and they also have a pecuniary interest in not cutting down to a much the fees of any member of their body. They would report to the Minister who would have in reserve the usual powers where a case was proved of deducting something from the remuneration of the practitioner concerned.

Dr. MORGAN: Will the practitioner have the right of appeal?

Captain GUNSTON: Would the hon. lady say what action is going to be taken if it is found that a doctor has behaved wrongly? Is he going to be debarred from practice?

Miss LAWRENCE said the usual method was to make a certain deduction from the remuneration of the doctor concerned.

Mr. T. LEWIS: Will the approved societies or insurance committees have any part in this review?

Miss LAWRENCE: No. It has been agreed that it shall be the panel doctors in the locality who will investigate such matters.

The debate was adjourned.

MINISTRY OF AGRICULTURE VOTE.

ON Monday, May 12th, the House of Commons went into Committee on a vote of £2,312,310 for salaries and expenses of the Ministry of Agriculture.

Mr. BUXTON (Minister of Agriculture) stated that the sum devoted to research and education had now risen to £750,000. A survey ship for fishery research was to be built at a cost of £80,000. This work was also of great importance in connexion with river pollution. It was undoubtedly a public scandal that so many of our delightful rivers were being turned into open sewers. In regard to the Royal Veterinary College, the Treasury had sanctioned a grant of £100,000 from the Development Fund on a £1 for £1 basis. The Colleges ought to be rebuilt at the earliest possible moment, and the Ministry would be prepared to help in every possible way.

Tuberculosis in Cattle.

Dr. HASTINGS drew the attention of the Minister of Agriculture to the question of tuberculosis in cattle. He said that the question was an important one for farmers, because the cattle most affected were milch cattle, and they did not contract the disease in their early years, but when they had reached the milk producing age. He asked the Minister if he could give any accurate estimate of the number of cows so affected. It had been suggested that they numbered nearly 1,000,000, or 40 per cent., of the milch herds of this country. Something between 4 and 8 per cent. of the samples of milk exhibited for sale were found to contain tubercle germs. About 2000 deaths occurred each year among human beings as a result of infection by the bovine bacillus. As far as they knew the germs reached the human subject in nearly every case by means of milk. Apart from deaths, 20,000 persons were affected by the disease. It affected young children more than adults, and was the cause of 46 per cent. of the cases of glandular tuberculosis, 50 per cent. of the cases of lupus, and 66 per cent. of the cases of tuberculous meningitis. He would like to know what was being done to mitigate and cure this terrible evil. It had been suggested that by pasteurising milk everything necessary was done, but by pasteurising an impure article they did not make it pure; the toxins and bacteria were not destroyed. There was also clear evidence that certain changes took place in milk as the result of pasteurisation. There was clear evidence that the calciums contained in milk were changed by heating and became less digestible and less easily absorbed. Experiments showed that children did not do so well on pasteurised milk. So in the interests of mankind, as well as those of the citizens and farmers of this country, it was desirable that the Ministry of Agriculture should do everything in their power to eradicate tuberculosis from the cattle of this country. So far as he knew their chief activity in the matter centred round the Tuberculosis Order, 1925. From a report issued for 1928 he noticed that something like 1700 cattle have been slaughtered; 162 cattle, or 1 per cent., were so bad that they died before there was time to slaughter them. It was also interesting to note that out of 347 cattle reported as giving tuberculous milk, 264 had no lesions of the udder at all. Did the Minister believe that the eradication of tuberculosis in cattle was going to be effected by merely destroying animals which were so badly infected that 1 per cent. of them died before there was time to slaughter them? In his opinion nothing short of the complete eradication of the disease in cattle would do what was necessary. It seemed to him that what was being done under the Tuberculosis Order was merely to destroy cattle after a good deal of mischief had already been done. Were the cowsheds in which these animals lived disinfected, and were experiments being carried out by the Ministry in regard to the immunisation of calves against tuberculosis or the rearing of stock which was not susceptible to that disease? Another point was that farmers in this country had to pay for the T.T. certificates, and also the fees of veterinary

surgeons who tested their cows. In Denmark, he understood, the services of veterinary surgeons, and the tuberculin used for testing, were given free, and it would be very useful if the same thing could be done in this country. There was another method which he suggested might be adopted by the Ministry—namely, the method of "accredited" herds. Under that method which was in use in America, farmers were assisted to have their herds tested, and as soon as "accredited" herds were produced in any number in a district, an attempt was made to establish what was known as an "accredited" area. Where 75 per cent. of the farmers wished to form an "accredited" area, compulsion was used on the rest, so that the herds might be made free from tuberculosis.

Reply to the Debate.

Dr. ADDISON (Parliamentary Secretary to the Ministry of Agriculture), replying to the debate, said that the position of this country with regard to agricultural research was a discredit to an intelligent community. For the last few years we had been spending millions in compensation for animals which had been burned in connexion with outbreaks of disease. It was only the other day that we began to spend any substantial amount on research in the cause of prevention of foot-and-mouth disease, after we had spent at least £10,000,000 in compensation for animals which were destroyed because they were thought to be infectious. That remark applied to our attitude with regard to many other animal diseases. Some years ago, in regard to medical research and scientific industrial research, the then Government, of which he was a Member, got together a committee to exercise a general oversight, and to give comprehensive advice as to the lines which that research might take, the type of cases where research might be undertaken, and so on. They were now engaged in considering a provisional report with the idea of seeing whether they could adapt that kind of suggestion to agricultural research. It seemed to him, without being committed at this stage to the recommendations, which they had only seen for a few days, that the committee offered the most helpful possible suggestions. It was quite evident that if they were going to have organised, well-directed research, designed to remove the chief causes of waste and loss in agriculture, they must have some machinery of that kind. That was why the committee had been investigating the matter during the last few weeks.

The vote was agreed to.

HOUSE OF LORDS.

WEDNESDAY, MAY 7TH.

Workmen's Compensation (Silicosis) Bill.

THE Committee stage was concluded, and the Bill was reported without amendment to the House.

HOUSE OF COMMONS.

WEDNESDAY, MAY 7TH.

Health Insurance in Scotland.

Mr. STEPHEN asked the Secretary of State for Scotland if he would consider the introduction of legislation to protect the rights of unemployed men and women, on the lines of the prolongation of Insurance Acts, in view of the fact that otherwise thousands of men and women would cease to be eligible for health insurance benefit at the end of this year.—Mr. JOHNSTON (Under Secretary for Scotland) replied: I am aware of the position mentioned by my hon. friend, and the matter is being considered by my right hon. friend, the Secretary of State, in consultation with the Minister of Health.

THURSDAY, MAY 8TH.

Notification of Psittacosis.

Mr. MANDER asked the Minister of Health whether it was the intention of the Government to make psittacosis a notifiable disease, in accordance with the recommendations of the health section of the League of Nations.—Mr. GREENWOOD replied: In view of the obscure nature of psittacosis I am advised that it is unlikely that any useful purpose would be served by compulsory notification of the disease. Medical practitioners and others have already been invited to report suspected cases of psittacosis to the local medical officer of health, or to my department, and I have no reason to suppose that this procedure is not being followed. The recommendation in favour of notification to which the hon. Member refers is, so far as I am aware, only an expression of opinion by the compiler of a recent review of psittacosis published in the monthly Epidemiological Report of the Health Section of the Secretariat of the League of Nations.

Progress of Housing.

Mr. SIMON asked the Minister of Health if he would state what was the total number of houses completed since the termination of the war up to the latest convenient date; and what proportion of these houses were for letting.—Mr. GREENWOOD replied: The total number of houses completed in England and Wales since the termination of the war up to March 31st last, including houses of a rateable value not exceeding £78 (or £105 in the metropolitan police district) erected by private enterprise without State assistance, is approximately 1,463,000. I regret that I am unable to say what proportion of these houses are for letting; the number of houses erected by local authorities was 527,769, and the great majority of these were built for letting.

Child Mortality in India.

Mr. FREEMAN asked the Secretary of State for India how many children, per 1000, born in India died during their first year; and to what extent this was estimated to be due to the effects of opium.—Mr. WEDGWOOD BENN replied: The rate per 1000 of deaths of children under 1 year old in 1927 (the latest year for which figures are available) are: males, 174·1; females, 159·30. I am not aware of any attempt having been made to estimate to what extent, if any, this death-rate is due to the effects of opium.

Preservatives in Cream.

Brigadier-General CLIFTON BROWN asked the Minister of Health whether he would withdraw the order forbidding the use of preservatives in cream which had caused a reduction of that article with a consequent loss to agriculture and an increase of unemployment in the businesses concerned.—Mr. GREENWOOD replied: Representations on this subject were recently made to my right hon. friend, the Secretary of State for Scotland. I am considering the question in consultation with him, and a decision will be announced as soon as possible.

Maternity Accommodation.

Dr. HASTINGS asked the Minister of Health the number of maternity beds recognised by his department for grant in voluntary and municipal institutions respectively.—Mr. GREENWOOD replied: On April 1st, the date on which grants for these purposes were placed on the new basis under the Local Government Act, there were 1538 maternity beds in voluntary institutions, and 1023 such beds in municipal institutions, in respect of which grants were paid by my department.

National Medical Services.

Mr. FREEMAN asked the Minister of Health whether his attention had been called to the proposals of the British Medical Association to nationalise the medical services of this country; and what steps, if any, he proposed to take to give them practical effect.—Mr. GREENWOOD replied: I assume that my hon. friend refers to the proposals described by the Association as proposals for a general medical service for the nation. These proposals have only recently been published, and I have not yet had an opportunity of considering them closely; but I do not gather that they are intended to have any such effect as is indicated in the question.

Health of Teachers.

Dr. VERNON DAVIES asked the President of the Board of Education (1) if he had any statistics as to the health of men and women teachers; and if there was any evidence to show that the health of women teachers was not as good as that of men teachers; and (2) if he could express in percentages of the number of teachers employed in either sex the 347 men and 1609 women teachers who were granted infirmity allowance for the three years ending March 31st, 1930; and if these allowances were for life or for a limited period of time.—Sir CHARLES TREVELYAN replied: The infirmity allowances awarded in the three years ended March 31st, 1930, represent in the case of men 0·2 per cent. of the total number of teachers employed, and in the case of women 0·4 per cent. These allowances are awarded for life. These figures show that a higher percentage of women qualify for infirmity allowances; but I have no other evidence which would justify me in drawing a comparison between the sexes in the matter of health.

MONDAY, MAY 12TH.

Dangerous Drugs in India.

Mrs. HAMILTON asked the Secretary of State for India whether the Government of India had recently authorised the cultivation of the coca plant and the manufacture of cocaine.—Mr. WEDGWOOD BENN replied: No, Sir. The facts of the case are that recently the Government of India, in order to strengthen the means at their disposal for carrying out their obligations under the Geneva Convention, placed before the Indian Legislature a Bill to control the traffic of

dangerous drugs. One clause of the Bill prohibited the cultivation or gathering of the coca plant, and to this clause the select committee added the proviso that the prohibition did not apply to the cultivation or gathering of the plant by Government, the object being to allow Government to grow the coca plant and to experiment in the manufacture of cocaine if at any time it were thought desirable that the cocaine required for proper medicinal uses in India should be produced in India. This appears to be the foundation of the incorrect report that the Government of India have authorised the cultivation of the coca plant, and the manufacture of cocaine. No action in this direction has been taken nor, so far as I am aware, is any contemplated. The Dangerous Drugs Act, which has passed into law, merely makes this legally possible.

Medical Examination of Pensioners.

Dr. HUNTER asked the Minister of Pensions whether he would arrange forthwith that no further medical boards should be held on pensions (except on deterioration claims, errors of final awards, Article 9 claims, or setting aside cases), and that the present assessment, whether on a deterioration or current award basis, should be made as current for the next three years.—Mr. F. O. ROBERTS replied: The number of cases in which further medical examination is requisite is now reduced to very small proportions. I have full sympathy with the hon. Member's desire that medical re-examination should be reduced to the minimum possible, and it is the practice of the Department to give prolonged awards wherever justifiable. But I have no power to authorise awards which are not covered by medical certification, or to refrain from awarding a permanent settlement in those cases which are suitable for it.

Dr. HUNTER asked the Minister of Pensions whether he was prepared to take the necessary steps to make statutory all awards, whether errors of final awards, or on over seven years' claims, so as to give the same rights to these pensioners as to others.—Mr. ROBERTS replied: Legislation of the kind referred to is not contemplated as either necessary or desirable. The mere grant of statutory powers to make awards of the two classes referred to would not, of itself, confer material rights which pensioners do not already possess.

TUESDAY, MAY 13TH.

Merchandise Marks Orders.

In reply to Sir Nicholas Grattan-Doyle, Mr. WILLIAM GRAHAM (President of the Board of Trade) stated that the classes and descriptions of imported goods in respect of which Orders in Council had been made under the Merchandise Marks Act, 1926, requiring them to bear an indication of origin, included surgical, medical, dental, and veterinary instruments and appliances; aseptic hospital and dental furniture, and dental supplies; cotton-wool, gauze tissues, sanitary towels, spring balances, and scientific glassware.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—A meeting of the Council was held on May 8th, with Lord Moynihan, the President, in the chair.

Prof. L. G. Parsons and Mr. Seymour Barling attended, and on behalf of the medical staff of the Birmingham General Hospital presented a replica of Partridge's portrait of Joseph Hodgson, president of the College in 1864.

Diplomas of Membership were conferred on 136 of the candidates whose names we gave on May 3rd as recipients of the L.R.C.P. (excepting A. H. Baker, C. C. Bryson, W. W. Gerrard, C. C. Kapila, J. I. Rerrie, and Samuel Scher) and also upon Julia A. Boyd, Royal Free, and Laura M. Hollingsworth, University College.

Lord Moynihan was reappointed representative of the College on the Court of Governors of the University of Sheffield for three years from July 1st.

The President also reported that a vacancy on the Court of Examiners occasioned by the retirement of Mr. Graham Simpson would be filled at the next meeting of the Council.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—A quarterly meeting of the College was held on May 6th, with Sir Norman Walker, the President, in the chair.

Dr. James Kirkwood Slater, Dr. John Henry Douglas Webster, and Dr. Sydney Watson Smith were introduced and took their seats as Fellows.

Lieut.-Colonel William Frederick Harvey and Dr. Herman Petrus Gunnar were elected to the Fellowship.

Dr. John Orr was elected a representative of the College on the committee of management of the triple qualification The Parkin Prize was awarded to Prof. R. J. S. McDowall.—The award of the Lister Fellowship was divided equally between Dr. Ralph Stockman Begbie and Dr. Donald Stewart.—Dr. W. A. Alexander was granted recognition as a lecturer on the practice of physic.—The College decided to celebrate the 250th anniversary of its foundation on St. Andrew's Day, 1931.—Intimation was made of a bequest by Mrs. Isabella Kirk Duncanson for the foundation of a Fellowship in medical research.

ON May 10th Dr. H. B. Brackenbury, chairman of the Council of the British Medical Association, was admitted to the freedom of the borough of Hornsey. He was mayor of Hornsey in 1905 and has been a member of its council for 26 years.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.—The next series of lectures and demonstrations on tropical hygiene, which are intended for those outside the medical profession who are going to the tropics, will be given by Lieut.-Colonel G. E. F. Stammers, between May 28th and June 6th. The lectures will be from 5.30 to 7 P.M., and full particulars may be had from the Secretary of the school, in Keppel-street, W.C.1.

ROYAL SANITARY INSTITUTE.—A sessional meeting will be held at Blackburn on May 30th and 31st. Dr. J. J. Buchan will open a discussion on the Reorganisation of Poor-law Hospitals under the Local Government Act, and Dr. V. T. Thierens will speak on the Need for Further Legal Powers with Respect to Ice-cream.

LONDON HOSPITAL MEDICAL COLLEGE.—The distribution of prizes in this college will be made by Lord Rayleigh, F.R.S., on Tuesday, June 24th, at 3 P.M.

BIOCHEMICAL SOCIETY.—A meeting of this society will be held at the School of Medicine, Leeds, to-day, Saturday, May 17th, at 3 P.M.

NATIONAL PHYSICAL LABORATORY.—The President of the Royal Society, as chairman of the General Board, is holding a reception at the National Physical Laboratory, Teddington, on the afternoon of Friday, June 27th.

WEST SURREY HOSPITAL LEAGUE.—Last year the Royal Surrey County Hospital at Guildford received £6831 from this League, which is equivalent to one-third of the year's ordinary expenditure. The League, formed only two years ago, has a membership of 26,000.

UNIFORMITY OF HOSPITAL POLICY.—It has been arranged that the Birmingham General Hospital and the Queen's Hospital shall interchange representatives at the meetings of the respective boards of management. It is hoped thus to secure greater uniformity of policy.

KING'S COLLEGE HOSPITAL.—Last year there were 7006 in-patients, and the daily average of patients received was 349; in addition, 674 babies were born in the maternity ward. At the end of the year the hospital had a debt of £65,867.

HERTFORD BRITISH HOSPITAL, PARIS.—At the request of the committee of management Lord Tyrrell, the British Ambassador, who is honorary president, has appointed a commission of inquiry to report on the necessity of modernising and enlarging this hospital. The members are Lord Linlithgow (Chairman), Sir Basil Mayhew, Mr. Herbert L. Eason, Mrs. Loch, Mr. Evelyn M. Toulmin, and Mr. R. H. P. Orde, honorary assessor to the commission. The accommodation of the hospital has become insufficient to meet the growing demand for admission by members of the British community in Paris and British subjects from all parts of the Empire.

BRISTOL HOSPITALS.—On May 1st Lord Moynihan opened a new operating theatre at the Bristol General Hospital. He had come to Bristol a few years ago, he said, and had inspected a theatre in this hospital which he had described as the worst theatre in a first-class teaching school in this country. He had now come back to open one that was as good as any that he had seen anywhere. On his previous visit he had come as a friend and critic, and had judged the institution by the very high standard which modern surgery demanded. Judged by such standards it still fell short. In Bristol there were two hospitals, and he thought it a mistake that they had not amalgamated. It was not right that the General Hospital and the Royal Infirmary should be separated, and unless they amalgamated themselves they would find that someone outside would do it for them—and less satisfactorily. The university should be the centre of research, and all the work that the hospital was capable of doing. Lord Moynihan concluded by congratulating his audience on what they had done, and by fervently hoping that they would do much more.

LEBANON HOSPITAL.—Dr. Bedford Pierce will take the chair at the thirty-first annual meeting of this hospital, to be held in the vestry hall of St. Martin's-in-the-Fields, at 3.30 P.M. on Friday, May 23rd. The hospital is at Asfuriyeh, near Beirut, and is the only one of its kind in Syria.

MALARIA IN SOUTH AFRICA.—The Union Government, having definitely decided to start a scientific investigation into the malaria menace in South Africa, has appointed Prof. N. H. Swellengrebel, of Amsterdam, to conduct the necessary research. He is expected to go to South Africa in September. It is stated that Colonel S. P. James, of the English Ministry of Health, was invited to undertake the work, but was unable to do so.

LEPROSY RESEARCH IN SOUTH AFRICA.—The committee appointed to advise the Union Government regarding leprosy research and other matters relating to leprosy in the Union was gazetted on April 11th, as follows: Dr. J. A. Mitchell, Secretary for Public Health and Chief Health Officer for the Union, chairman; Sir Spencer Lister, Director of the South African Institute for Medical Research, or his deputy, Prof. A. W. Falconer; Prof. O. K. Williamson; Dr. A. Pijper; Dr. A. J. Orenstein; Dr. Karl Bremer, M.P.; Dr. F. C. Wilmot, Assistant Health Officer for the Union; and Dr. G. W. Robertson. The appointments are for the period ending December, 1935, and the Committee is to meet annually or more frequently as convened by the chairman.

NORTHAMPTON GENERAL HOSPITAL.—Mr. Thomas Singlehurst, of Northampton, has offered £10,000 for the provision of an in-patients' ophthalmic department of this hospital. Mr. Singlehurst gave an out-patients' ophthalmic department to the hospital six years ago.

STUDENTS' BEDS AT BIRMINGHAM.—As the result of their annual carnival on behalf of the hospitals of the city the students of Birmingham University last week endowed, at a cost of £1250 each, two more beds at the Queen's Hospital. Fifteen beds have now been endowed from this source. The carnival produced a total of £6700.

QUEEN'S HOSPITAL FOR CHILDREN.—Patients' contributions have risen from £3124 in 1925 to £6665. The first part of an extension scheme, which is about to be begun, will include accommodation for nursing mothers in connexion with a ward for babies, which is to be built with money from the Children's Jewel Fund. Sir James Carmichael is building an extension of the Little Folks' Home at Bexhill which will provide room for ten more children and accommodation for the nurses.

DESTROYING AN ISOLATION HOSPITAL.—Following the recent example of the Yeovil town council the corporation of Doncaster have set fire to their old isolation hospital which has just been replaced by a new institution. Most of the buildings were of wood and corrugated iron, and it was feared that if they were preserved they might spread infection. Carr House, the original hospital, was formerly the residence of the Childers family, and there, in the middle of the eighteenth century, was bred the famous racehorse, "Flying Childers."

UNIVERSITY COLLEGE HOSPITAL.—Last year 8374 in-patients and 77,129 out-patients were treated. The cost per occupied bed was £181, a reduction of £4. The patients' dietary has been revised and supplemented by adding meat breakfasts and rations of sugar and jam, and the prejudice of patients against even the best quality of margarine "has been partly overcome" by the issue of a half ration of butter. The provision of these extras will cost an additional £2000 a year. According to the annual report the new diet kitchen is "proving an invaluable aid to medical treatment, more especially in relation to specific diseases, such as pernicious anæmia, diabetes, &c."

A RHEUMATIC CLINIC IN BRIGHTON.—At a conference at Brighton on April 30th a resolution was carried unanimously favouring the establishment of a rheumatic clinic in the town. The gathering comprised representatives of the Brighton and Hove corporations; British Medical Association; Brighton and Sussex Friendly Societies' Council; Brighton Insurance and East Sussex Insurance Committees; Industrial Approved, British Red Cross (Sussex Branch), and Brighton and Sussex Mutual Provident Societies; Brighton and Hove Chamber of Commerce; and Brighton and Hove Hotels Association. The resolution recorded that the representatives of these organisations were strongly in favour of the establishment of a clinic locally, urged Brighton corporation to take the necessary steps at an early date, and appointed a subcommittee of one representative from each of the associations to arrange the details.

EXTENSION OF NELSON HOSPITAL.—Princess Mary has laid the foundation-stone of a new maternity wing and other extensions of Nelson Hospital for Wimbledon, Merton, and district. The Princess "proved" the stone with an oak mallet made of wood from the *Victory*.

EDENBRIDGE COTTAGE HOSPITAL.—On Saturday last Prince Arthur of Connaught laid the foundation-stone of the Edenbridge war memorial cottage hospital. The existing hospital was founded in 1920 in a temporary building; it is said to have been the first in England to start a contributory scheme, and it has never been in debt. A scroll was placed within the foundation-stone inscribed with the names of those to whom the hospital is a memorial.

MIDDLESEX HOSPITAL CHILDREN'S WARD.—This new ward, given by the late Mr. Bernhard Baron, came into use last week, when it was visited by Prince and Princess Arthur of Connaught. The ward, which is for surgical and medical cases, is brightly decorated, and the walls are covered with tiles upon which nursery rhymes are depicted; there is a deep blue dado and the cots are a bright blue. Upon arrival patients are placed in isolation wards separated by glass partitions where they remain for three or four days unless they have a clear medical history.

STAFFORDSHIRE MENTAL HOSPITALS.—Reports presented to the annual meeting of the Staffordshire Mental Hospitals Board showed that overcrowding exists in each of the three asylums—Stafford, Burntwood, and Cheddleton. At Stafford the excess over the authorised numbers is 98; and at Burntwood, where there are 947 patients, it is 30. The asylum visiting committee are pressing for the erection of an admission hospital at the latter institution. At Cheddleton (1133 patients) there is an excess of 34 females.

TRIBUTE TO A MEDICAL MAN.—Sir Garrod Thomas, M.D., who, for the last 25 years has been Chairman of the board of Directors of the Royal Gwent Hospital, at Newport, Mon., has been presented with a life-size bronze bust of himself, the work of Mr. L. S. Merrifield, and an album containing an illuminated address with 5000 signatures. Sir Garrod, who formerly sat in Parliament for South Monmouthshire, presented the bust to the hospital.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, Wimpole-street, W.

TUESDAY, May 20th.—5.30 P.M., GENERAL MEETING OF FELLOWS. Ballot for election to the Fellowship. 8 P.M., PATHOLOGY. Special General Meeting. To consider the suggested change in the times of the meetings of the Section—viz., 5 P.M., instead of 8 P.M.

THURSDAY.—8.30 P.M., UROLOGY. Annual General Meeting. Election of Officers and Council. Discussion on The Technique and Results of Prostatectomy. Opener: Mr. Kenneth Walker. Followed by Mr. Swift Joly, Mr. John Everidge, Mr. Clifford Morson, Sir John Thomson-Walker, and others.

FRIDAY.—8 P.M., EPIDEMIOLOGY. Annual General Meeting: Election of Officers and Council. Paper: Dr. P. Stocks: Infectiousness and Immunity in Regard to Chicken-pox, Whooping-cough, Diphtheria, Scarlet fever, and Measles.

CHELSEA CLINICAL SOCIETY.

TUESDAY, May 20th.—7.30 P.M., Dinner at the Hotel Rembrandt, Thurloe-place, S.W., followed by a discussion on Sleep, to be opened by Dr. S. A. Kinnier Wilson and Mr. P. Seymour-Price.

LONDON CLINICAL SOCIETY.

TUESDAY, May 20TH.—8.45 P.M. (at the London Temperance Hospital), Dr. A. Remington Hobbs: Puerperal Sepsis: Early Symptoms and Signs and Treatment by Drainage.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, May 19th, to SATURDAY, May 24th.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W., M.R.C.P. Special Course, Lectures on Tuesdays and Fridays at 8.30 P.M. Tues., Dr. L. S. T. Burrell: Intrathoracic Tumours. Fri., Dr. L. S. T. Burrell: Bronchiectasis and Abscess of Lung.—WESTERN OPHTHALMIC HOSPITAL, Marylebone-road, N.W. Wed., 11 A.M., Mr. Rugg-Gunn: Clinical Demonstration. No fee.—PRINCE OF WALES'S HOSPITAL, Tottenham, N. Fri., 2 P.M., Dr. L. R. Yealland, Clinical Demonstration. No fee.—CENTRAL

LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W.C. Last week of clinical course.—CENTRAL LONDON OPHTHALMIC HOSPITAL, Judd-street, W.C. Afternoon course, continuing for four weeks.—MAUDSLEY HOSPITAL, Denmark Hill, S.E. Course in Psychological Medicine. Clinical practice of hospital in addition to lecture-demonstrations.—ST. JOHN'S HOSPITAL, Leicester-square, W.C. Afternoon course, clinical instruction and lectures.—CITY OF LONDON HOSPITAL FOR DISEASES OF HEART AND LUNGS, Victoria Park, E. Second week of course. All day can be spent at hospital.—Further particulars from the Fellowship of Medicine.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, May 19th.—2.30 to 5 P.M.: Medical, Surgical, and Gynæcological Clinics. Operations.
TUESDAY.—2.30 to 5 P.M.: Medical, Surgical, Ear, Nose, and Throat Clinics. Operations.
WEDNESDAY.—2.30 to 5 P.M.: Medical, Skin, and Eye Clinics. Operations. 4.30 P.M., Mr. N. B. B. Fleming: Some Fundus Conditions (Special Lecture).
THURSDAY.—11.30 A.M.: Dental Clinics. 2.30 to 5 P.M.: Medical, Surgical, Throat, and Ear Clinics. Operations.
FRIDAY.—10.30 A.M.: Ear, Nose, and Throat Clinics. 2.30 to 5 P.M., Medical, Surgical, and Children's Diseases Clinics. Operations.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, May 19th.—10 A.M., Dr. Dowling: Skin Department. 11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Mr. Simmonds: Surgical Wards.
TUESDAY.—10 A.M., Medical Registrar: Medical Wards. 2 P.M., Mr. Hamblen Thomas: Throat, Nose, and Ear Dept. 2.30 P.M., Sir Henry Simson: Gynæcological Operations.
WEDNESDAY.—10 A.M., Dr. Burnford: Medical Wards. 2.30 P.M., Mr. Donald Armour: Surgical Wards. Dr. Scott Pinchin: Medical Out-patients.
THURSDAY.—11.30 A.M., Mr. Simmonds: Demonstration of Fractures. 2 P.M., Mr. Bishop Harman: Eye Department. 2 P.M., Mr. MacDonald: Genito-Urinary Department.
FRIDAY.—10 A.M., Dr. Pritchard: Medical Wards. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Department. 2 P.M., Mr. Sinclair: Operations.
SATURDAY.—9 A.M., Mr. Vlasto: Throat, Nose, and Ear Operations. 9.30 A.M., Dr. Burnford: Bacterial Therapy Department. 10 A.M., Dr. Owen: Medical Children's Department.
Daily, 10 A.M. to 5 P.M., Medical, Surgical, and Special Out-patients, Operations, Ward Visits, Anæsthetic Courses.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

MONDAY, May 19th.—5 P.M., Dr. H. Haldin-Davis: Drug Eruptions.
TUESDAY.—5 P.M., Dr. J. E. M. Wigley: Napkin Area Eruptions in Infants.
THURSDAY.—5 P.M., Dr. J. M. H. MacLeod: Leprosy.
FRIDAY.—5 P.M., Dr. W. Griffith: Bullous Eruptions.
MONDAY, May 26th.—5 P.M., Dr. J. A. Drake: Streptococcal Infections of the Skin.
TUESDAY.—5 P.M., Dr. W. J. O'Donovan: Tuberculosis of the Skin.
THURSDAY.—5 P.M., Dr. W. N. Goldsmith: The Nervous System in Relation to Skin Diseases.

UNIVERSITY COLLEGE, Gower-street, W.C.

WEDNESDAY and THURSDAY, May 21st and 22nd.—5.30 P.M., Prof. F. J. Cole: The Early History of Generation and Comparative Anatomy. (Last two of six free lectures.)

ST. MARY'S HOSPITAL INSTITUTE OF PATHOLOGY, W.

THURSDAY, May 22nd.—5 P.M., Prof. C. A. Lovatt Evans: Stages in the Investigation of the Physiology of the Heart.

GREAT NORTHERN HOSPITALS POST-GRADUATE LECTURES.

WEDNESDAY, May 21st.—3.15 P.M. (at the Royal Chest Hospital, City-road), Dr. Saxby Willis: Bronchiectasis.

CITY OF LONDON MATERNITY HOSPITAL, City-road, E.C.

TUESDAY, May 20th.—5 P.M., Mr. A. L. Walker: The Causes of Maternal Mortality.

NATIONAL HOSPITAL POST-GRADUATE COURSE, Queen square, W.C.

MONDAY, May 19th.—12 noon, Dr. Greenfield: Cerebro-spinal Fluid. 2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Dr. Collier: Subacute Combined Degeneration.
TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Mr. Armour: Spinal Injuries.
THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Mr. Julian Taylor: Trigeminal Neuralgia.
FRIDAY.—12 noon, Dr. Purdon Martin: Anatomy and Physiology of Nervous System. 2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Mr. Elmquist: Demonstration of Re-educative Methods (in Exercise Room).

UNIVERSITY OF BIRMINGHAM.

THURSDAY, May 22nd.—4 P.M., in the Medical Lecture Theatre, Edmund-street Buildings), Sir John Bland-Sutton: The Blood Trail. (Ingleby Lecture.)

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.

TUESDAY, May 20th.—4.15 P.M., Dr. R. S. Paterson: Radiology in Compensation Work.
FRIDAY.—4.15 P.M., Mr. W. R. Douglas: Demonstration of Surgical Cases.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

WEDNESDAY, May 21st.—4.15 P.M. (at the Western Infirmary), Dr. J. G. Tomkinson: Skin Cases.

Appointments.

HALLER, B. C., L.R.C.P. & S. Edin., D.P.H., has been appointed Medical Officer of Health and School Medical Officer, Bilston.

MURRAY, E. F., M.D., Ch.B. St. And., F.R.C.S. Eng., Hon. Gynæcologist, Royal Victoria Infirmary, Newcastle.

WILSON, EDRIC FRANK, F.R.C.S. Eng., Honorary Assistant Surgeon to the South Devon and East Cornwall Hospital, Plymouth.

Royal Infirmary, Manchester: RAYNER, H. H., F.R.C.S. Eng., Hon. Surgeon; SOUTHAM, A. H., M.D., M.Ch. Oxf., F.R.C.S. Eng., Hon. Assistant Surgeon.

Certifying Surgeons under the Factory and Workshop Acts: DAGGER, R. L., M.D., B.S. Durh. (Morpeth); and SHANKEY, P. J., M.B., B.Ch. Belf. (Rhayader, Radnor.)

Vacancies.

For further information refer to the advertisement columns.

Bath, Royal United Hospital. H.P. £120.
Berkshire C.C.—Asst. Tuber. O. and General Med. Asst. £600.
Birmingham P.H. Dept., Tuberculosis Section.—Temporary Asst. M.O. 7 gns. a week.
Birmingham, Queen's Hospital.—H.P., Res. Anæsth., and Cas. H.S. Each £70.
Birmingham, Selly Oak Hospital.—Cas. O. At rate of £200.
Bolton Infirmary and Dispensary.—Res. Surg. O. £250.
Brighton, Royal Alexandra Hospital for Sick Children.—H.P. £100.
Bristol, Clifton Dispensary, Dowry-square.—Res. M.O. £300.
Bury St. Edmunds, West Suffolk General Hospital.—Jun. Res. M.O. £120.
Cambridge, Addenbrooke's Hospital.—Res. Anæsthetist. Also H.P. At rate of £180 and £130 respectively.
Cancer Hospital, Fulham-road, S.W.—H.S. At rate of £100.
Chelmsford Borough.—M.O.H. &c. £800.
Chingford, Hospital for Infectious Diseases.—Res. M.O. £300.
City of London Hospital for Disease of the Heart and Lungs, Victoria Park, E.—H.P. At rate of £100.
City of London Maternity Hospital, City-road, E.C.—Asst. Res. M.O. At rate of £80.
Colchester, Royal Eastern Counties Institution for Mental Defectives.—Jun. Asst. M.O. £350.
Cumberland C.C.—Asst. County M.O.H. £600.
Derbyshire Education Committee.—Asst. School M.O. £600.
Doncaster Royal Infirmary.—2nd H.S., 3rd H.S. Each £150. Also two Hon. Anæsthetists. £50.
Dreadnought Hospital, Greenwich.—Anæsthetist. 50 gns.
Durham County Hospital.—Sen. H.S. At rate of £160.
East London Hospital for Children and Dispensary for Women, Shadwell, E.—H.S. Also H.P. Each at rate of £125.
Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Med. and Surg. Regs. Each £100.
Evelina Hospital for Children, Southwark, S.E.—H.P. At rate of £120.
Fleetwood, Rossall School.—Res. M.O.
Gloucestershire Royal Infirmary and Eye Institution.—H.P. and H.S. At rate of £135 and £100 respectively.
Gt. Barrow, nr. Chester, East Lancs. Tuberculosis Colony, Barrowmore Hall.—Asst. M.O. £250.
Great Yarmouth General Hospital.—H.S. £125.
Guildford, Royal Surrey County Hospital.—Res. Med. and Surg. O. and Reg. £250.
Halifax Royal Infirmary.—3rd H.S. At rate of £125.
Hertford County Hospital.—H.P. At rate of £150.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—Hon. Psychiatrist. Two Med. Regs. Also Clin. Path.
Hospital for Sick Children, Great Ormond-street, W.C.—H.S. Also H.P. Each at rate of £100.
Huddersfield Royal Infirmary.—H.S. At rate of £150.
Hull Royal Infirmary.—H.S. At rate of £150.
Liverpool School of Tropical Medicine, Pembroke-place.—Research Asst. £400.
London Hospital, E.—Cardiographic Dept. Paterson Research Scholar, £400.
London Lock Hospital, 91, Dean-street, W.—Hon. Surgeon to Out-patients.
Manchester, Ancoats Hospital.—H.S. At rate of £100.
Manchester City.—M.O. for Maternity and Child Welfare Centres. £600.
Manchester Royal Children's Hospital.—Sen. M.O. to Out-patient's. £300.

Manchester Royal Eye Hospital.—Jun. H.S. £120.
Manchester Royal Infirmary.—Surg. O. to Out-patients. £35.
Manchester, Withington Hospital, &c., Nell-lane, West Didsbury.—Three Jun. Asst. M.O.'s. Each at rate of £275.
Miller General Hospital, Greenwich-road, S.E.—Pathologist. £600. Out-patient Officer. At rate of £150. H.P., and H.S. Each at rate of £125.
Mitcham Junction Isolation Hospital.—Asst. R.M.O. £200.
Nottingham General Hospital.—2nd Cas. O. At rate of £150.
Perth, County and City Royal Infirmary.—Jun. H.S. Also H.P. Each £100.
Perth Prison and Criminal Lunatic Dept.—M.O. £440.
Plymouth, City of.—Deputy M.O.H. £750.
Plymouth City Hospital.—Res. Med. Supt. £1000.
Portsmouth Royal Hospital.—H.P., 3rd H.S. Each at rate of £130. Also Cas. O. At rate of £100.
Queen Charlotte's Maternity Hospital, Marylebone-road, N.W.—Asst. Res. M.O. At rate of £80.
Rotherham County Borough.—Asst. M.O.H. &c. £700.
Rotherham Hospital.—Sen. H.S. £200.
Royal Free Hospital, Gray's Inn-road, W.C.—H.P.'s and H.S.'s to Special Depts. Obstet. H.S. £150. Also District Obstet. Asst. £100.
Royal London Ophthalmic Hospital, City-road, E.C.—Nine Out-Patients Officers. Each £100.
Royal National Orthopædic Hospital, Gt. Portland-street, W.—Hon. Anæsthetist.
St. Bartholomew's Hospital, E.C.—Physician.
St. Mary's Hospital, W.—Surgical Registrar. £200.
Saint Pancras Dispensary, 39, Oakley-street, N.W.—Res. M.O. £185.
Salford, Lancs., Hope Hospital.—Asst. M.O. At rate of £250.
Salford Royal Hospital.—H.P. Also Cas. H.S. Each at rate of £125.
Sheffield, Jessop Hospital.—Res. M.O. £175.
Sheffield Royal Hospital.—Res. Ophth. H.S. Also Res. Anæsthetist. Each at rate of £80.
Southampton Borough Hospital.—Res. M.O. £275.
Southampton, Royal South Hants. and Southampton Hospital.—Asst. H.S. and Cas. O. Each £180.
Streatham Babies Hospital, Leigham-court road, S.W.—Res. M.O. £100.
South-Eastern Hospital for Children, Sydenham, S.E.—Asst. and Res. M.O.'s. At rate of £100 and £75 respectively.
Swansea General and Eye Hospital.—H.S., Cas. O., and H.P. Each at rate of £150.
Warwick, Warwickshire King Edward VII. Memorial Sanatorium, Hertford Hill.—Med. Supt. £800.
Weir Hospital, Grove-road, Balham, S.W.—Jun. Res. M.O. £150.
West London Hospital, Hammersmith, W.—Hon. Surg.
Weston-Super-Mare General Hospital.—Res. H.S. £130.
Weymouth and District General Hospital.—H.S. £180.
Willesden General Hospital, N.W.—H.P. £100.
Windermere, Ethel Hedley Hospital for Crippled Children.—Res. H.S. At rate of £150.
York Dispensary.—Res. M.O. £150.

Births, Marriages, and Deaths.

BIRTHS.

LEWSEN.—On May 14th, at 83, Teignmouth-road, N.W., the wife of Dr. S. Charles Lewsen, M.R.C.P., of a daughter.
O'NEILL.—On April 17th, at British Families' Hospital, Karachi, the wife of Squadron Leader C. T. O'Neill, R.A.F. Medical Service, of a son.
PIDCOCK.—On May 8th at The Friary, Winchester, the wife of B. Henzell Pidcock, M.B., B.S., F.R.C.S., of twin sons.
PLUMPTRE.—On April 29th, at Kodai Kanal, India, the wife of Major Cyril M. Plumptre, F.R.C.S.E., I.M.S., of a daughter.
SANDFORD.—On May 6th, at St Barnabas Hospital, Saltash, the wife of Dr. F. Rossall Sandford, of a son.
WORSLEY.—On May 7th, at Black Torrington, Devon, the wife of Dr. R. Carmichael Worsley, of a daughter.

MARRIAGES.

SIMPSON—BEACH.—On April 29th, at the Church of the Holy Trinity, Prince Consort-road, Kensington, Charles Walter Simpson, M.B., B.Ch., of Beaconsfield, Bucks, to Margery Joan, second daughter of Mr. H. G. Beach, of Fordingbridge.

DEATHS.

BAKER.—On May 5th, at a nursing home, Frederick Grenfell Baker, M.R.C.S., L.R.C.P., L.S.A.
BRIDGMAN.—On May 10th, at Broomfield, Dawlish, Henry Edward Bridgman, M.R.C.S., L.R.C.P., formerly of Burton-on-Trent, in his 81st year.
HELM.—On May 12th, at Bradshaw-street, Moss Side, Manchester, William Alexander Helm, M.B., Ch.B., aged 58 years.
LANG.—On April 13th, 1930, at Jansenville, Cape Province, Arthur Joseph Lang, M.R.C.S., L.R.C.P., second son of the late Dr. and Mrs. John Lang (formerly of Southport, Lancashire).
MCCOWAN.—On May 2nd, Gladys, wife of Peter K. McCowan, M.D., M.R.C.P., "Velindre," Whitchurch, nr. Cardiff.
THOMAS.—On May 8th, at Bank House, Brecon, Thomas Price Thomas, M.A., M.R.C.S., L.R.C.P.
WEIGHTMAN.—On May 2nd, at Mylor, Cornwall, Edward John Weightman, M.B.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages and Deaths.

Notes, Comments, and Abstracts.

SHOULD MEDICINE BE A MENDICANT?

A REVIEW OF OUR HOSPITAL SERVICE.

Harveian Lecture delivered at the Harveian Society of London on March 13th

BY ERNEST W. HEY GROVES, F.R.C.S. ENG.,
PROFESSOR OF SURGERY IN THE UNIVERSITY OF BRISTOL.

(*Concluded from p. 1051.*)

Voluntary System not Adaptable to Modern Developments of Medical Science.

MEDICAL practice used to be founded on the teaching of ancient masters, and it consisted in the empirical administration of drugs to sick people. Some handling of the patient was necessary to let out his poisoned blood, or to cover his sores, and this rather menial handiwork was relegated to the barber or chirurgeon, whilst the indecencies of childbirth were relegated to the midwife. In such practice there was obviously no advantage in, or necessity for any institution, except for the feeding and lodging of the poor. The tradesman and well-to-do patient was attended at home. But for 300 years this crude application of empirical knowledge has been gradually replaced by scientific study of disease, and within the past century the rate of advance has been so much accelerated that in its last quarter everyone of us can look back on his own student days as a time when the science of medicine was comparatively simple and knowledge of disease restricted.

But however much medical science may grow as the mysteries of infinite nature are discovered, the practice of medicine still has to be carried out by human beings of very finite capacities. Therefore it is that the growth of knowledge has necessitated subdivision of labour—in other words, medical specialism. First of all there was the separation of surgeons, as a separate class from physicians, and their attainment of an independent status, then a long time later some physicians became accoucheurs and midwifery was accepted as a necessary specialism, whilst the development of optical science and optical instruments called forth the ophthalmic surgeon. The segregation of infectious fevers and of mental cases became necessary for protection of the rest of the community.

Thirty years ago specialism had not got much further than this. The general hospital had physicians, surgeons, physician-accoucheurs, and ophthalmic surgeons, whilst fevers and mental diseases were placed in isolated institutions with medical attendants of their own. But since that time scarcely a decade passes without some corner of the territory of medical knowledge being so enlarged as to demand special workers and explorers for its investigation and utilisation. Physician-accoucheurs have taken off their coats and scrubbed their hands and become surgeons and gynæcologists. Diseases of the ear, nose and throat have acquired a domain of their own; dental surgery, anæsthesia, pathology, bacteriology, public health, tuberculosis, radiology, and venereal diseases have established undisputed claims to separate recognition. Orthopædic surgery has established an overwhelming claim which for various reasons has not been fully granted. Such subjects as neurology, cardiology, and genito-urinary diseases show a tendency to departmental segregation, but still for the most part form only subsections of the parent medicine or surgery. At the moment we are considering whether radium therapy is to be a new department or merely a new agent to be used by physicians, surgeons, and gynæcologists.

Some subjects—e.g., radiology—involve so much technical knowledge and apparatus that they become special departments very quickly. Others, such as orthopædics, difficult of definition and being founded on general surgical principles, are very slow to be segregated. But I think no one will dispute that advance of knowledge and accuracy of treatment always follow the intensive study and teamwork, which is involved in making any special department. This was well illustrated during the war, both in regard to fractured femurs and facial injury. The treatment of gunshot fractures of the femur, which was a matter of terrible failure at the beginning of the war, became satisfactory just so soon as it was treated as a special subject, the patients being brought together, a team of surgeons and nurses trained to carry out the treatment, and a proper continuity of after-treatment secured. So whether we like it or not, we must face the fact that the giant growth of medical science, unaccompanied by a corresponding giant growth of supermen, can only be practised and

advanced by groups of men, taking each a special study and accumulating special experience. But, on the other hand, the patient, the sick or injured man, is only one, and his ailment must be studied as a whole, or at any rate by several men working in coöperation with one another.

Fission and Fusion.

Therefore both for the healing of the individual and for the advance of knowledge, it becomes necessary to provide for some living fusion of the parts of the medical organisation to counteract the necessary fission which every day differentiates its units more and more from one another.

A simile may be borrowed from the development of animal life. Both in growth of an individual from the ovum to the adult, and in the evolution of the race from the amœba to man, two great processes take place in measured harmony. The cells divide and become differentiated from one another, both in structure and in function, so that at last a great variety of tissues and organs are produced. But this division and differentiation is accompanied by a coördination of all parts, controlled by a central nervous system. I think it may be fairly claimed that medical science in its growth and development must conform to these two natural and immutable laws: differentiation and coördination, or fission and fusion. It would be easy to push this analogy further. The team of students, doctors, and nurses working in any special department may be likened to one organ in the body, the hospital unit to a group of organs carrying out one special vital function, whilst the medical service of the country represents the living body as a whole. The general practitioners may be likened to the free and roving cells of the blood, constantly visiting each organ of the body in turn, giving to and taking from each.

But enough of a fanciful analogy, and let us return to plain facts. The growing complexity of medical science with its vital necessities of differentiation and coördination necessitates quite a different grouping of patients and doctors from that which sufficed 100 years ago, and was fairly satisfactory even at the beginning of the present century. Then it was reasonable to treat the rich man at his own home, and to collect the indigent in poor-houses of which the voluntary hospital was one variety. Now, not only has the distinction between poor and rich become less marked, but medicine has become a science which can only be applied under scientific conditions, and the classification should no longer be between rich and poor, but between one type of disease and another. If elaborate apparatus, special laboratories, expensive operating theatres, and a team of medical men and nurses are necessary to investigate the disease and to treat the injury of a poor man, then these are equally necessary in the case of the rich or middle classes. The middle classes have enough common sense to understand this quite well, and they do now actually form the bulk of the patients in our voluntary hospitals, whilst the unfortunate rich man has still to make shift with some arrangement improvised in his own mansion, or with the scanty resources of a small nursing home.

The general hospital of the future must take in patients of all social classes if they are suffering from disease which requires investigation and expert treatment. It must be large enough to include all the special departments of medicine and surgery. It must also be large enough to give the greatest economy in overhead charges, equipment, and personnel. In large centres of population, 500 bed hospitals would probably represent the best size of unit. Where multiple small hospitals exist, these should be amalgamated into groups with a single administration and a united staff. Isolated hospitals must be retained for certain types of cases—e.g., mental diseases, fevers, tuberculosis, and venereal disease.

Probably diseases of an essentially chronic and incurable nature in poor patients will also require special hospitals. But diseases of slow course but curable nature such as surgical tuberculosis and poliomyelitis, which necessitate special country hospitals, certainly should not be made on a class basis. All the arguments adduced above can be urged here for making centres of maximum efficiency, where patients of all social classes can be received.

In country districts and small towns where the ideal big hospital is not possible, small hospitals are a necessity, but they ought to be all brought into coöperation with the big hospital service scheme. Even the most remote country districts ought to be linked up with the county town or big city, so that medical practitioners can easily get the services of consultants, and patients can readily be transferred who require special treatment. A ten bed cottage hospital may be an inestimable boon to a country district, but that is no justification for trying to make it do the same work as is possible in the primary general hospitals, nor is it any justification for expecting the medical men who staff it to be experts in every branch of medical science. There should be no such thing possible as an isolated small hospital independent of supervision and control. Every such hospital should be definitely linked with a large one, so that the freest exchange of consultation and patients can take place between one and the other. I believe that a system of this sort has already been adopted, with excellent results in the Highlands and Islands of Scotland.

Obstacles in the Way of Accomplishment.

The two first great obstacles which hinder the attainment of an ideal hospital service in this country are the voluntary or mendicant system upon which the great and teaching hospitals are dependent, and the lack of any central body with the knowledge and power to control and direct. The action of both these obstacles is well illustrated by the happenings in a large city with which I am well acquainted. Ten years ago it was urged that there existed in the district a pressing need of an open-air school hospital for chronic and curable disease, chiefly affecting children. This need is now being met by three perfectly independent bodies. The municipal authority is completing a hospital for surgical tuberculosis, a charitable organisation is opening a hospital for non-tuberculous diseases, whilst an existing children's hospital is enlarging its premises and making open-air wards in order to cope with exactly the same type of case as the other two. So that before long there will be three institutions each of 100 beds competing instead of coöperating, requiring three sets of administrative officials, three sets of apparatus, and, what is worst of all, three sets of experts. This lamentable and indefensible absurdity was foreseen, and an attempt made to prevent it, but when the promoters met together it was evident that they only really agreed about one thing, and that was the determination to maintain their independence, each one of the other, and so long as they depended upon independent sources of income no outside authority could be brought to bear upon them in order to force amalgamation, however much this might be for the common good. The Local Government Act of 1929 has gone a long way towards making possible a general unification of the hospital system. We await with interest its results. In its broad outline it brings together the municipal and voluntary hospitals. It removes the stigma of pauperism from the former institutions. It sets up a machinery whereby a local committee can bring about some coöperation between the two classes of hospitals. But it leaves untouched the fundamental error of regarding the great voluntary hospitals as institutions for the care of poor people which have to be maintained by the donations of the rich. And in its provision for coöperation it is rather permissive than authoritative. If in any locality there exists a broad-minded wish for amalgamation and coöperation, it provides the machinery by which this can be brought about. It is instructive to notice that up to the present Aberdeen seems to have gone furthest in adopting this plan of voluntary coöperation between the different types of hospitals. Aberdeen, which has gained a world-wide reputation for a canny care for money and of avoidance of waste! Just as you can tell an Aberdeen boat at a distance because no seagull thinks it worth while to follow in its wake to pick up what is thrown away, so Aberdeen leads the way in substituting coöperation for competition, so as not to waste money or skill in the provision of the best hospital service for the sick and injured.

It is often assumed that if we give up our cherished voluntary or mendicant hospital system, we shall have no alternative but that of State service, but this assumption is quite unjustified by the facts. There is no other country in which the voluntary hospital system is adopted to the same extent as in England. There are many countries in which the mendicant system does not exist at all, and in which a very nearly perfect hospital system does exist. Countries like Switzerland and Denmark have fine hospitals, but I suppose that in these it might be claimed that a State service is really responsible for them. But it is in the English-speaking countries, the United States of America, Canada, and other Colonies where modern hospital developments are most instructive to us. For all these places began with the English tradition of voluntary hospitals, but in all of them, although voluntary bequests for buildings and voluntary efforts in social service are utilised, yet in the main the finest hospitals in the world are maintained without resort to mendicancy and yet without State control. The guiding principles of these hospitals is that of making the institution one which admits all classes of the community and in which the middle-class patient pays for himself, whilst the rich patient not only pays for himself and the poor, but incidentally pays for the medical staff.

How to Overcome these Obstacles.

There are two obvious courses by which in England the evils of mendicancy can be abolished. One is by making the hospital suitable for all classes, and the other is by an extension of the insurance system, whether it is that effected by the State or that known as the contributory scheme.

There would still be a certain proportion of destitute persons who could neither pay for themselves and who were not insured. These would be paid for by the county or municipal authorities, as is now done when such patients have to be treated at the municipal hospitals. But many of the old hospitals which have invested endowments would be able to continue gratuitous treatment of indigent patients if once they were relieved of the unreasonable burden of treating the middle classes. To the really charitably minded persons who think that we ought to give hospital treatment freely to the genuinely destitute sick, the present system can afford but little comfort. For although the voluntary hospitals profess to be for poor people, yet in reality the pressure upon their accommodation is so great and financial stringency so urgent that the destitute person who cannot pay £1 a week is often pushed aside, whilst hospital beds are filled by tradesmen and professional classes. On the other hand, if the well-to-do and middle-class patient were adequately paid for by private fees or an insurance scheme, then the original funds bequeathed for the poor could be used for the purpose for which they were intended.

The patients who pay for themselves would also pay ordinary professional fees to the members of the medical staff who attend them. The staff would also receive a fixed salary in respect to the insured patients and those of no means, which would be met by money received from the insurance fund and from the profits made by the treatment of the paying classes. The practicability of this plan is beyond question because it is in actual existence in America, several of the Colonies, Switzerland, and elsewhere, although the financial details vary in each place. With us, the only real difficulty is the sentimental idea of the beauty and holiness of the voluntary system. I wonder how long this sentiment will survive the criticism of considered reason and the contemplation of the lengths to which mendicancy has been driven!

Appeals from the pulpit and from the press, through the wireless and at street corners recur with a wearisome monotony which makes us marvel that the term voluntary can still survive. Students and nurses are sent out to conduct a ribald harlequinade in the streets, in aid of the good cause, citizens are raided and held to ransom or offered the blackmail choice of purchasing an immunity ticket, the hoardings of the streets are covered by pitiful appeals, mechanical contrivances are set up in shop windows to lure subscriptions from the curious. A spotted dog offers to wink an eye for a shilling, or wag his tail for 2*s.* 6*d.* Lotteries, which the pious have declared to be immoral, are yet allowed in aid of this cause. Champagne supper parties are held at the ——— Club in aid of maternity charities! And all this in the name of sentiment, which is revolted at the idea of reducing the conduct of hospitals to a decent self-respecting matter, of well-to-do patients paying for themselves and middle-class patients being provided for by insurance.

The adoption of a self-supporting system instead of mendicancy would at once solve the difficulty of maintenance, and there would be enough margin, too, to cover the provision and replacements of apparatus, but it would not meet the need of new buildings. We have drifted so far behind the times in the present generation that there is a great need for new and modern buildings. Quite apart from the replacement of several small hospitals by one large one, of bad old buildings, in unsuitable sites by good new ones in good sites, the new hospital system would be obliged to provide many more beds, because if the artisan and his family are insured for hospital treatment, then this would have to be provided, so that the scandal of waiting-lists with people kept out of work for months and years whilst they wait for their turn for a hospital bed would have to be abolished forthwith. The capital outlay on building would have to be met out of county and treasury funds, as would only be proper for the execution of work which would give employment to many who are now on the dole. The hospitals should be like the universities, in receipt of State aid, which does not involve State control.

The Controlling Body.

But the solution of the financial difficulty by no means gives us any assurance of the ideal hospital system for which we are pleading. It merely removes the first and greatest hindrance to the realisation of our ideal. Once sweep away the mendicant principle, and then present hospital managers will no longer have any excuse or justification for behaving as though they controlled a proprietary institution. There will be no force tending to prevent hospital units from being organised into a hospital system. This raises a second great problem to be faced and that is the constitution of the controlling and directing body, which shall organise and supervise the hospitals. The Hospitals Advisory Committees, set up by the recent Act, might form useful local bodies, if once the voluntary hospitals gave up their independent position.

At present the committees are of unwieldly size. They contain representatives of all hospitals of the district, the majority being managers of voluntary institutions, whose first duty would seem to be to maintain the rights and prestige of the hospital they represent, rather than to evolve a system which shall serve the district as a whole. But in addition to the local committees there must be a central body under the guidance or control of medical experts, which shall be able to shape, direct, and supervise the hospital policy of the whole country. The Ministry of Health is not suitable to undertake this work any more than the medical officers of health are capable of undertaking all the responsibilities laid upon their shoulders by the Local Government Act. The Health Ministry represents experts in only one branch of the healing art—namely, that of preventive medicine. In the days of the war there was a council of consultants which worked in coöperation with the Army Medical Service. In like manner a council of consultants should be associated with the Ministry of Health, to direct the hospital policy of the country.

Only in this way will it be possible to adopt a progressive programme of reform, and to bring into one harmonious whole the big teaching hospitals, the municipal hospitals, the special hospitals, and the small hospitals in town or country districts. Every honest man, whether lay or medical, who has travelled abroad and seen hospitals in other countries must know that we have much ground to make up in respect of hospital construction and organisation, medical research and education. The demand for reform and advance should come from the medical profession, and not be forced upon the country by party politicians, nor be compelled by a mere breakdown of that voluntary system which once was a noble philanthropy, but which now has degenerated into an indecent mendicancy, unjustified either by morals or necessity.

IDENTIFICATION BY TEETH.

FIRE, injury, or decomposition often make bodies unrecognisable after death, and in these circumstances the teeth afford useful means of identification. They nearly always bear marks by which their owner can be distinguished; they are more resistant to destructive agents than any other structure, and are well protected. Dr. Alexander Klein,[1] of Vienna, says that a tooth which is suddenly exposed to intense heat will split into fragments, but if heated slowly it chars, the enamel cracks, and finally all organic components are destroyed, and only white ash is left. In the body, however, the overlying structures nearly always protect the teeth from complete destruction, especially when the victim of the fire, though unrecognisable through smoke and scorching, is not calcined. Moreover, fire spares most of the work of the dentist. According to the work of Wachholz and Lepkewski, quoted by Klein, amalgam and gutta-percha disappear completely, but gold and platinum remain unaltered. Phosphate and silicate cement fillings retain their shape and consistency, and are merely blackened; porcelain, metal plates, crowns, and bridges are unharmed.

Apart from dentistry there are many distinguishing marks a mouth may bear; few persons have no gaps, almost everyone has some teeth which are not in their right position or of the right height, and a certain small percentage have definite malformations, such as fused and supernumerary teeth or peg-teeth. It is obvious that the chief value of this method is to verify or contradict a suspicion. Klein, in an interesting if somewhat discursive account of the Ringtheater disaster of 1881, relates that a mere description of the teeth enabled the relatives to identify some of the corpses, but when there is one calcined body and it is desired to know whether it is or is not that of a particular person, the dentist can nearly always clinch the matter beyond doubt.

Klein adds another to the stories of detection which depend on examination of the teeth. A diplomatic official in Chile complained of threatening letters, and one night the embassy was burnt down and his charred body was found in the ruins and buried with great public lamentation and eulogy. The director of the Chilean dental school had his doubts and examined the jaws of the corpse an hour before burial. The next day he announced that the deceased was not the missing official; within a few days the latter was arrested on the frontier with the whole negotiable wealth of the embassy. The body was that of the night porter, who had never been to the dentist; although the murderer had been to particular pains to mutilate the teeth, they were easily distinguishable from his own as described in his dentist's records.

[1] Schweiz. Mona'ss. f. Zahnhk., 1929, xxxix.

RED NOSE.

THIS distressing stigma, which is hardly mitigated by calling it erythema nasalis, has many origins. Dr. J. C. Warbrick enumerates[1] 13 causes which could be more conveniently classified as (1) local or intranasal, (2) reflex, as in rosacea, and (3) metabolic, as in renal and cardiac cases.

Any intranasal abnormality, whether mechanical or infective, or both, can give rise to passive congestion which in a terminal and exposed structure such as the nose will soon cause manifest and disturbing symptoms. The patient should be questioned about signs of nasal obstruction and referred to a rhinologist if there is evidence of such common conditions as a deflected nasal septum, chronic nasal catarrh, mucous polypi, or furunculosis in the atrium nasi.

Reflex causes are probably the most common of all those responsible for the red nose. A history of dyspepsia—associated, according to some authorities, with pronounced hypochlorhydria—and of concomitant facial flushing, can often be elicited and may explain the condition at once. There is no doubt that disorders of the uterus and adnexa are sometimes at the bottom of the symptom. Alcoholic excess, again, is an undoubted cause of erythema nasalis, but its existence is seldom admitted by the patient—probably because people whose red nose is a result of alcoholism do not usually bother to ask a doctor about it. Dilated veins are most apt to recur in this "reflex" group.

In the metabolic category we should have to consider such factors as the "chilblain circulation." In these cases the patients are mostly young girls with blueish rather than red noses. Cardiac and renal back-pressure may play a part in causation, but such cases are not likely to present themselves for the disfigurement alone. Dyspepsia due to a gouty diathesis or hepatic dysfunction—not necessarily causing hypochlorhydria—may explain why an apparently normal gastric content is sometimes revealed on analysis. Constipation, doubtless, acts in a similar way, and it always needs attention when present.

A recurrent cutaneous infection, such as a low-grade erysipelas, although difficult to imagine in a form localised to the nose, is mentioned by Warbrick. There is also the possibility of localised infection of the sebaceous glands, with or without acne, and that exceedingly rare affection of the adolescent youth known as hyperidrosis rubra nasi. Adenoma sebaceum, first classified by Pringle, and sometimes associated with a deficient mental development, is in the nature of a nævus and confined to girls.

These are the main causes of a red nose, although the list is by no means exhausted. The symptom may be part of a seborrhœic tendency, with erythema and greasiness of the nasolabial sulcus and a scurfy scalp. It can also occur as part of the clinical picture in lupus erythematosus, psoriasis, and lupus vulgaris. It follows that all who aspire to success in treatment must possess a fairly extensive knowledge in the domain of general medicine, as well as the special experience that can only be acquired in the out-patient department of a dermatological clinic.

GIDEON MANTELL.

ON May 8th, at a house in Old Steine, Brighton, a tablet was unveiled bearing the following inscription:—"Here lived from 1833 to 1838, Gideon Algernon Mantell, Geologist." Besides being one of the pioneers of geology, Gideon Mantell was a medical practitioner. Born at Lewes, he served there an apprenticeship to a surgeon named James Moore, and afterwards qualified at St. Bartholomew's Hospital. Returning to Lewes, he practised medicine for 20 years, and at the same time carried on exhaustive researches in the surrounding district. He published a volume entitled "The Fossils of the South Downs, and the Geology of Sussex." He made a great collection of fossils and geological remains, and these were acquired by the British Museum. In 1833, Dr. Mantell was induced to go to Brighton in the hope that he would find easier conditions of practice, but he did not succeed, and died in 1852. The tablet was unveiled by Sir Arthur Smith-Woodward, who, as a former keeper of the geological specimens in the British Museum, had for 42 years Dr. Mantell's collection of fossils under his care.

STAINS ON THE HANDS.

Prof. Paul Delmas, of Montpellier, advises[2] the use of commercial ammonia, diluted to one half or one quarter with water, for the removal of iodine stains from the hands' after the first intensity of the discoloration has been reduced with alcohol. The stains turn a rusty black, and subsequently disappear. Bloodstains, which are occasionally persistent on the hands, can be removed by washing in a solution of tartaric acid and warm water.

[1] Amer. Med., 1929, xxxv., 559.
[2] Quoted in Semaine Dentaire, April 20th, p. 596.

HOSPITAL STAMPS.

Mr. A. G. Galloway writes: The recent appeal for foreign postage stamps to be sold in aid of Charing Cross Hospital recalls the part philately has played in assisting other medical causes. There have been many special issues of stamps sold for the benefit of charity at a price above their face value. Thus as long ago as 1897 New South Wales and Victoria both issued two special postage stamps which although possessing franking powers of only 1*d.* and 2½*d.* were sold for 1*s.* and 2*s.* 6*d.*, the difference going towards a home for consumptives. Many of the smaller British colonies, such as the Bahamas, Jamaica, and Trinidad, have either had Red Cross stamps or have issued semi-official labels. A unique method of collecting funds was adopted by South Africa in 1918, when for two months special aeroplane flights were made round the Cape of Good Hope and in the Transvaal, souvenir cards being sold at 6*d.* each, bearing the inscription "By Aerial Post—make your Sixpence Fly."

It is, however, in foreign countries that we find more elaborate methods to assist the Red Cross cause. In Belgium in 1914 a handsome set of postage stamps was placed on sale at Antwerp; but they had only a brief existence, for they appeared but two days before the German occupation. In 1928 a complete set of pictorial stamps bearing views of the Belgian Cathedrals was issued in that country for the benefit of the Anti-Tuberculosis Fund. Apart from producing several charity stamps, France has lately recognised bacteriology by putting the portrait of Pasteur on a number of her recent issues.

"THE T.B. PATIENT'S GUIDE."

Dr. F. J. C. Blackmore, who, as tuberculosis officer for the Metropolitan Borough of Woolwich has great experience in the management of consumptive patients, has long been aware that many failures in treatment are due to the fact that the patient fails to appreciate the gravity of the disease until it has reached an advanced stage. In a little book recently published[1] he has succeeded in warning the patient against possible dangers without being unduly alarming. The reason for various methods of treatment is described, so that the patient can understand why he should rest in one stage and work or take exercise in another. In a chapter on complications, hints are given for dealing with night sweats, indigestion, insomnia and other troubles. Advice on clothing, food, employment, and the general mode of life is also given. The tuberculous patient who wishes to work in coöperation with his doctor without worrying him with too many questions will appreciate the information here set out.

PROGRESS OF CONTRIBUTORY SCHEMES.

AT a county conference in connexion with the Norwich hospitals contributory scheme it was decided that, in view of the increasing needs of the many institutions aided by the scheme, it is desirable to make the minimum contribution 2*d.* instead of 1*d.* The scheme, which started in 1919 with an income of £600, last year produced £30,000. It was argued that only in this way can long waiting-lists be avoided.—The annual report of the Royal Buckinghamshire Hospital, Aylesbury, shows that the income of the contributory scheme has increased from £804 in 1923 to £4176 in 1929.—A voluntary hospitals council has been established at Hull composed of representatives of all the local hospitals and dispensaries, which is putting into operation a contributory scheme on the now familiar model. Contributions are twopence or threepence weekly, according to wages, and should a member fall ill while away he will be treated at the local voluntary hospital at the cost of the fund. It is hoped to obtain an income of £55,000 a year.

CONTINENTAL LABORATORIES, LTD., of Lower Belgrave-street, London, S.W., inform us that their address from May 19th will be 30, Marsham-street, S.W.1. (Tel.: Victoria 2041).

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[1] London: Cassell and Co., Ltd., 1930. Pp. 76. 1*s.* 6*d.*

A MEMORIAL COTTAGE HOSPITAL.—The Haddington Vert Memorial Cottage Hospital was recently formally opened by Mr. John Vert, of Pendleton, Oregon, U.S.A., a native of the town, and the son of a former provost, and the donor of £10,000 towards the cost of its erection and equipment. The hospital, which will serve a dozen surrounding parishes, is built of red sandstone obtained from the demolition of Amisfield, a former residence of the Earls of Wemyss, about a mile from Haddington. It is primarily a memorial to Mr. Vert's parents, but a wing will be known as the Elcho Ward, in memory of the eldest son of Lord Wemyss, who fell in the war; the Jessie McLean ward commemorates Mr. Vert's late wife. There are, in addition, a maternity ward, two private wards, and a theatre.